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NOTICE

Professor Sidney N. Deane of Smith College retires with this issue from the editorship of News and Discussions. Since his appointment four years ago he has served with singular efficiency. The editor takes this occasion to express on behalf of readers of the Journal a sense of great appreciation of Professor Deane's work.

Professor Edward H. Heffner of the University of Pennsylvania has generously consented to edit News and Discussions beginning with the first issue of the coming year. To him should be addressed all books and periodicals intended for notice in the Journal.

George W. Elderkin

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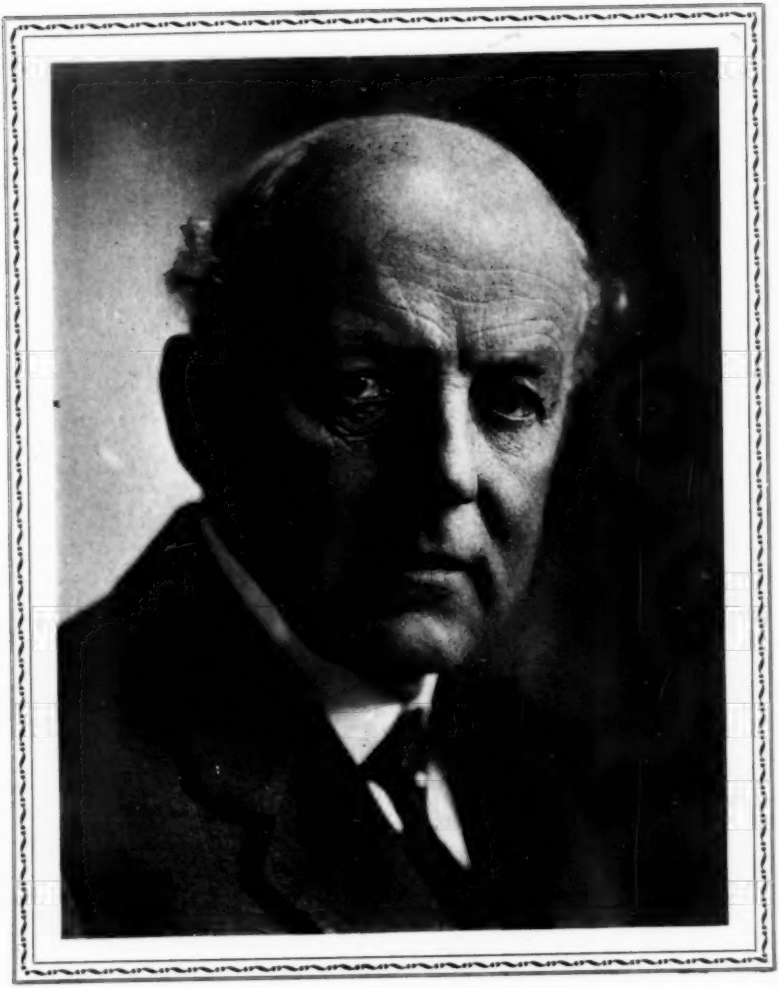

ALLAN MARQUAND

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Allan Marquand

1853–1924

A happy life of large achievement has come to an end. Professor Allan Marquand was finely prepared for the work to which he devoted so many years with splendid success. Refinement and culture were the companions of his youth. He was richly endowed with scholarly instinct which found its natural outlet in teaching and special study. One of his greatly cherished ambitions was to foster the study of art, therewith to ennoble the minds of men and enrich their lives. He gave a university a large valuable library, wishing to share with others a rare possession. In his published works he has bequeathed a still rarer gift, a sympathetic appreciation of those masterpieces of tranquil emotion which are a treasure for all time. His achievement will live on in our memory—a memory made richer by his gentleness.

θνήσκειν μὴ λέγε τοὺς ἀγαθούς

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THE PROPORTIONS OF THE APOLLO OF TENEA

ANYONE who tries to investigate the mathematical proportions supposed to have been used by Greek sculptors of the great period in designing their statues is confronted at the outset with an insuperable obstacle: the impossibility of obtaining exact measurements. In the case of a well-preserved temple the length and the breadth of the ground-plan, or the height and width of a member, can be accurately ascertained. Division of one dimension by the other produces a ratio, which may, or may not, prove to have significance. But the Doryphorus of Polyclitus, for example, has no vertical axis; the figure is not drawn up to its full height; there are few rigorously fixed points which can be used to measure the lengths of the separate members; the statue, moreover, exists only in Roman copies, which differ appreciably among themselves. While literary tradition compels us to believe that the sculptor designed the statue in accordance with a mathematical canon, we cannot hope to recover this canon with any degree of certainty. "Pour apprécier et mesurer sûrement le Doryphore, il faudrait être en présence de l'original et l'analyser à l'aide du commentaire que l'auteur lui-même en avait fait." [1]

There is, however, one group of Greek statues which can be investigated from this point of view with some hope of arriving at tangible results. The archaic "Apollos," or κοῦροι, are rigidly frontal; a line drawn through the centre of the breast-bone, the navel and the fork is straight, and bisects the figure exactly. The variation in pose of the legs does not disturb the bilateral symmetry of the front elevation. These statues, moreover, are unencumbered with drapery; and the schematic rendering of details makes it possible to determine some at least of the more significant divisions of the body with reasonable accuracy, if only sufficient pains are taken.

Among the numerous examples of this type the Apollo of Tenea

[1] Eugène Guillaume in Rayet, *Monuments de l'art antique*, Vol. I, *Le Doryphore*, p. 11. All writers have not been so cautious. Professor W. W. Hyde, for example, in discussing canons of proportion (*Olympic Victor Monuments*, pp. 65 ff.), quotes some tentative measurements of Guillaume as if they threw light on the Polyclitan canon, but ignores the sentence quoted above. The most recent treatment of the subject, by F. W. G. Foat ("Anthropometry of Greek Statues," *J.H.S.* XXXV, 1915, pp. 225 ff.) includes a long bibliography; but study of the works cited would probably only confirm Guillaume's statement. Mr. Foat's own article is full of just and illuminating observations. But his aim is to present a new method of "andriantometry" applicable to statues of all periods. He submits a few diagrams of Greek statues intended to illustrate its application, but without sufficient comment to make them intelligible. And he has apparently not attempted to translate the proportions discovered into terms which might conceivably have been used by the ancient sculptor.

furnishes the best subject for such experimentation, since it is very carefully executed, and in almost perfect preservation, only a portion of the right arm being restored. Certain coincidences in the dimensions of details have long been noticed. In Furtwängler's *Beschreibung der Glyptothek*, second edition, 1910, p. 52, the theory is advanced that the sculptor used the length of the foot as a module for determining the proportions. "Die Unterbeine sind zwei Fuss lang, die Kopfhöhe beträgt eine Fusslänge und von der Kinnspitze bis zu einer die Brustwarzen verbindenden Linie, sowie von da bis zum Nabel und endlich von da bis zu der (zu ergänzenden) Spitze des Gliedes ist die Distanz jeweils eine Fusslänge." These coincidences are striking enough to justify a more thorough investigation of the proportions. It would be interesting to ascertain whether the total length of the figure can be expressed in terms of the module, and whether the horizontal as well as the vertical measurements of details throw any light on the problem. The most satisfactory method of studying the proportions of a statue is to reduce it to two dimensions, in other words, to draw an accurate, full-size, orthogonal projection. Such a drawing was made by Mr. Hambidge and myself some years ago, from measurements of a cast in Boston, and the results were published by him in *The Diagonal*, pp. 200 ff. For several reasons a restatement of them in simpler terms may be of value. Since the diagrams given by Mr. Hambidge are composed throughout of squares, the proportions can all be expressed in numerical ratios which are more readily intelligible to those accustomed to think in arithmetical rather than geometrical terms. The diagrams themselves can, I believe, be put into a clearer form. And an examination of three other examples of the type shows that the scheme of the Apollo of Tenea is not an isolated phenomenon.

In the *Beschreibung der Glyptothek* the height of the statue is stated to be 1.53 m. Careful measurements of the cast in Boston gave a height of nearly 1.54 m. which is closer to the dimensions called for by the proportional scheme. This latter dimension is used here for convenience, since it makes it possible to state the measurements of most details without fractions of centimetres. If the actual height is assumed to be 1.535 m. the dimensions are still accurate within two or three millimetres. The module used in the *Beschreibung* is the length of the foot. But this is only correct, if we assume a theoretical length of .209 or .210 m. On the cast in Boston the feet are of different lengths, the right measuring .2025 m., the left .206 m. That the height of the head, .21 m., is closer to the module used by the sculptor appears from the following table, in which the ratios are given in two forms: A, with the height of the head taken as unity; B, with the greatest width, or twice the height of the head, taken as unity.

	Dimensions	Ratios		Error
		A	B	
Greatest width (measured across forearms)	.419 m.	2	1	.001 m.
Width of body at waist	.21 m.	1	½	0
Width at knees	.209 m.	1	½	.001 m.
Height of head	.21 m.−	1	½	
Distance from chin to level of nipples	.207 m.	1	½	.003 m.
Distance from level of nipples to centre of navel	.201 m.	1	½	.009 m.
Length of lower legs	.42 m.±	2	1	
Height to top of forehead	1.472 m.	7	3½	.002 m.
Height to level of collar-bones	1.26 m.±	6	3	
Complete height	1.54 m.−	7⅓	3⅔	
Height to root of penis	.775 m.	3⅔	1⅔	.005 m.
Height of head and neck	.28 m.±	1⅓	⅔	
Greatest width of chest	.28 m.	1⅓	⅔	0
Greatest width of thighs	.28 m.	1⅓	⅔	0
Height of face	.142 m.	⅔	⅓	.002 m.
Width of neck	.105 m.	½	¼	0

The analysis might be carried farther, to include the proportions of the face. But the dimensions become so small that coincidences have less significance. The measurements given above, on the other hand, are in no case smaller than one half of the module (.105 m.); and with two exceptions they appear to be accurate within three millimetres. The ratios speak for themselves: nine of them are equal to the height of the head, or even multiples of it; the remaining seven contain only the simple fractions one-half and one-third. It is surely not unreasonable to claim that they constitute, if not a canon, at least a scheme consciously used by the sculptor.

His actual procedure must remain a matter of conjecture. But the question at once suggests itself whether he made the main dimensions of the figure conform in a simple way to one of the Greek units of linear measurement known to us. The module, .209 or .210 m., bears no recognizable relationship either to the Aeginetan-Attic foot of .327 m. or to Professor Dinsmoor's Ionic foot of .294 m.[1] Nor do any of the larger measurements conform simply to either of these units—with one exception. The height of the statue to the top of the forehead is about 1.47 m. or seven modules. This dimension is known to have been important in Egyptian canons of proportion; the top of the forehead was the highest measurable point on the figure, since the skull was hidden under a wig, or other headdress, which varied in size. It happens that 1.47 m. is exactly five Ionic feet of .294 m. But the same dimension is almost equally close to three Attic cubits, or four and a half feet of .327 m. One of

[1] This "Ionic" foot, referred to by Dinsmoor, *A.J.A.* XXVI, 1922, p. 263, is apparently the "Solonian-Attic" foot of .296 m. given a new name, and reduced two millimetres in length.

these coincidences must be accidental; and since no other dimensions conform to either standard, both are evidently to be rejected. The length of the module must have been fixed arbitrarily; the sculptor probably made the statue as large as the block of marble at his disposal allowed.

In the table of proportions given above no fractions of the module occur except halves and thirds. It is conceivable that the sculptor used a rule marked off into units of 21 cm., with subdivisions into sixths. But another method of procedure by which the same proportions could be more simply obtained is shown in Fig. 1. A square

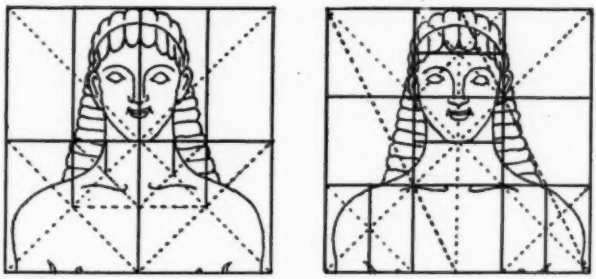

FIGURE 1. APOLLO OF TENEA
LEFT. DIVISION INTO HALVES AND QUARTERS
RIGHT. DIVISION INTO THIRDS AND SIXTHS

is constructed with sides equal to the greatest width of the statue, or two modules. In the left-hand diagram this square is divided with the help of diagonals into halves and quarters; in the right-hand diagram into thirds and sixths, giving all the main proportions of the upper part of the figure. The whole statue could be enclosed in a rectangle made up of three and two-thirds of these squares, and all the proportions of details determined in the same way by intersections of diagonals, as shown in Fig. 2. It would be a simple matter to reproduce such a diagram full-size on the rectangular face of the block; and it would serve as a guide for the preliminary sawing or chiselling away of the superfluous portions of the material. In the later stages of the work the dimensions could be accurately controlled by referring to the diagram, which need not have been larger than one half, or even one quarter of the actual size.

This analysis of the proportions of the Apollo of Tenea accords well with the observation of Professor Loewy that archaic Greek sculptors designed their work in two dimensions. A statue in the round is necessarily plurifacial; but the early artist regarded it as made up of four separate faces put together at right angles to one another, with the angles only incompletely rounded off. And he devoted his chief attention to the front view. The sides are less

carefully designed, and the back is neglected; it results automatically from the putting together of the front and sides.[1] The proportions of the Apollo as seen from the front conform accurately to a mathematical scheme. Mr. Hambidge's diagram of the profile, on the other hand, is not convincing; the proportions cannot be expressed in

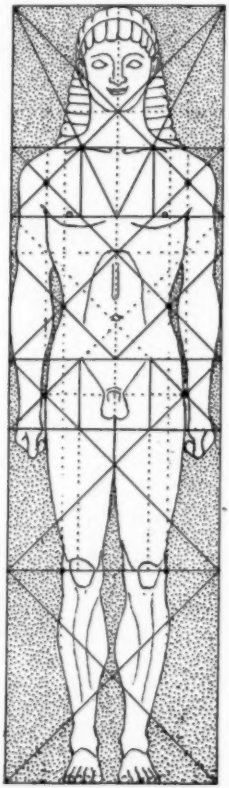

FIGURE 2. APOLLO OF TENEA

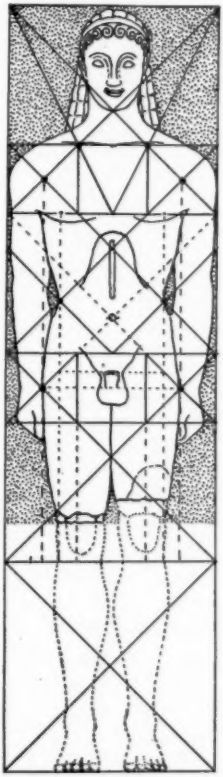

FIGURE 3. APOLLO OF THERA

simple terms of the module. Even the lengths of the feet are inaccurate, as we have seen. And it is worth noticing that the right ear is placed a centimetre lower than the left.

A close parallel to the Apollo of Tenea is furnished by a statue no less famous, and of even earlier date—the Apollo of Thera.[2] Study

[1] In his *Rendering of Nature in Early Greek Art*, pp. 57 ff. Loewy discusses the Apollo of Tenea as a striking exemplification of this phenomenon.

[2] Most published photographs of this statue fail to do it justice. Cf. the excellent reproductions in Hiller von Gaertringen, *Thera*, III, pls. 12–14.

of its dimensions suggests that the two figures were executed *paene ad unum exemplum*, so far as their chief proportions are concerned. In Fig. 3 the Theran statue is shown enclosed in the same diagram. The measurements, taken from a cast, suggest that the unit was about .261 m. The height of the head is 9 mm. less than this; but the inaccuracy is perhaps accounted for by the fact that the head was made of a separate block. The margin of error is greater throughout, as is shown in the following table:

	Dimensions	Ratios	Error
Greatest width (across shoulders)	.522 m.	2	0
Distance from chin to centre of navel	.522 m.	2	0
Height of head	.252 m.	1	−.009
Width of neck	.131 m.	½	+.001
Width of waist	.266 m.	1	+.005
Width of chest	.358 m.	1⅓	−.01
Width of thighs	.341 m.	1⅓	+.007
Height of head and neck (to level of collar-bones)	.348 m.±	1⅓	
Height of face	.18 m.	⅔	+.006
Distance from top of head to root of penis	.913 m.	3½	−.005
Distance from chin to line of nipples	.267 m.	1	+.006
Distance from line of nipples to centre of navel	.255 m.	1	−.006

The complete height of the figure remains in doubt. In the Apollo of Tenea the root of the penis is at half the height. If this member was similarly placed in the Theran Apollo, the figure would have been seven heads high. But in that case the legs would be noticeably short. In the diagram the height has been assumed to be seven and one third modules, like that of the Apollo of Tenea. The length of the lower legs is excessive; but it compensates for the shortness of the thighs.

The two archaic κοῦροι in Delphi, representing the Argive twins Cleobis and Biton, were evidently intended to be exact duplicates the one of the other. If the statues were executed in accordance with a mathematical scheme based on the height of the head, one would expect to find a fairly close correspondence in the chief dimensions. An investigation of the proportions can only be carried out successfully in the Museum at Delphi. And even there a comparison of all the dimensions is impossible. The statue called "A" by M. Homolle is complete except for the feet and ankles. The statue "B" lacks its right arm, its left leg from the bottom of the knee downward, its right knee and foot.[1] The complete height of A as restored is given by Homolle as 2.16 m.; the original height may have differed from this by several centimetres. He gives the height of

[1] Homolle, *Fouilles de Delphes*, IV, pp. 5 ff., pls. I, II, figs. 4–9. For the identification, v. Premerstein, *Jahreshefte*, XIII, 1910, pp. 41 ff.

the head as .30 m., and suggests that the statue was seven heads high. But measurements of the cast in the British Museum show that this dimension is incorrect. The head is at least .33 m. high, or one half of the greatest width, which is correctly given by Homolle as .66 m. And certain other measurements tend to confirm the theory that this length, .33 m., was the module employed by the sculptor. They are as follows:

	Dimensions	Ratios	Error
Height of head	.33 m.	1	0
Greatest width (across shoulders)	.665 m.	2	.005 m.
Width of neck	.165 m.	½	0
Width of waist	.33 m.	1	0
Width of chest	.445 m.±	1⅓	
Width of thighs	.44 m.	1⅓	0
Distance from chin to incised line marking top of pubes	.655 m.	2	.005 m.
Chin to bottom of pectoral muscles	.33(approx.)	1	

These proportions are shown graphically in Fig. 4, a diagram analogous to that of the Apollo of Tenea. The complete height is there assumed to have been 6⅔ modules, or 2.20 m. But this remains conjectural.

Another parallel, or rather foil, to the Apollo of Tenea is furnished by the Apollo from Volomandra in the National Museum at Athens. Study of the dimensions published by Kabbadias,[1] supplemented by measurements taken by myself, suggests that the sculptor of this statue also made some use of mathematical proportions. The figure is preserved intact except for the hands and feet. Its complete height is 1.79 m. The height of the head, .255 m. is almost exactly one seventh of this. The greatest width, measured across the forearms is .505 m., or half a centimetre less than twice the height of the head. The width at the knees is close to .255 m. The height of the legs to the knees is about twice this dimension. The distance from the chin to the line of the pectorals, and from there to the navel, is in each case nearly .255 m. These coincidences appear clearly in the diagram, Fig. 5, in which the statue is shown enclosed in a rectangle with a height three and one half times its width. It seems impossible to carry the analysis farther. The width of the waist, .246 m., is a centimetre less than the module; the widths of the chest, .318 m., and of the thighs, .323 m., are considerably less than two thirds of the total width (.34 m.). The width of the neck, .102 m., is one fifth, instead of one fourth of the total width. While the figure as a whole is broader than the Apollo of Tenea in relation to its height, this is due to the excessive breadth of the shoulders and arms. The head, neck,

[1] Ἐφ. Ἀρχ. 1902, p. 43.

chest, waist and thighs are disproportionately narrow, and the legs are too long. These differences are obvious when one compares photographs of the two statues. The value of the diagrams is that they suggest an explanation for the inferiority of the Attic κοῦρος from the point of view of design. Its sculptor may have used the height of the head as a module for establishing roughly some of the

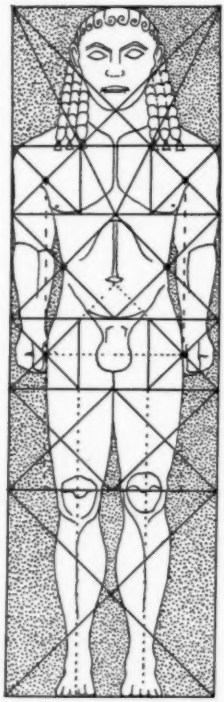

FIGURE 4. "BITON."

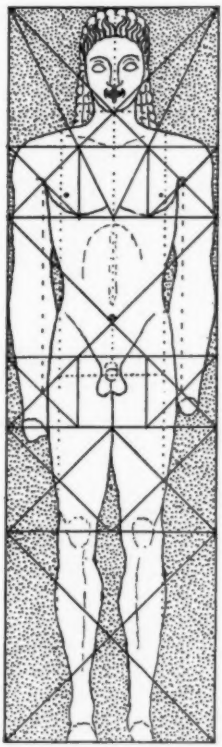

FIGURE 5. APOLLO OF VOLOMANDRA

vertical dimensions of the figure. But for the most part he worked freely—and unsuccessfully.

The purpose of this paper has been to show that the Apollo of Tenea was executed in accordance with a simple, but carefully thought-out geometrical scheme of proportions, which had already been used by the sculptor of the Apollo of Thera. The Argive artist who made the statues of Cleobis and Biton seems to have employed a closely analogous scheme. And the module found in all three stat-

ues reappears in the less carefully proportioned Ionic-Attic Apollo from Volomandra. Study of the ratios submitted may give us some insight into the psychology of the early Greek sculptor confronted with the problem of hewing a rectangular block of marble into the semblance of a nude standing figure. His first concern would be to get his proportions right. He would seek for a simple unit,—a sort

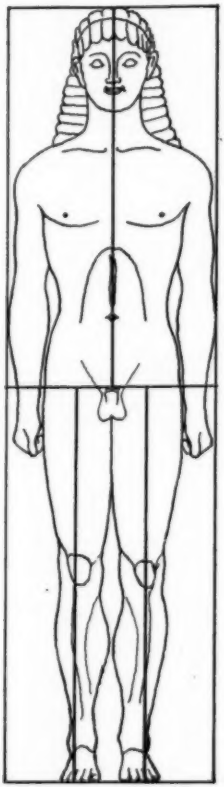

FIGURE 6. APOLLO OF TENEA

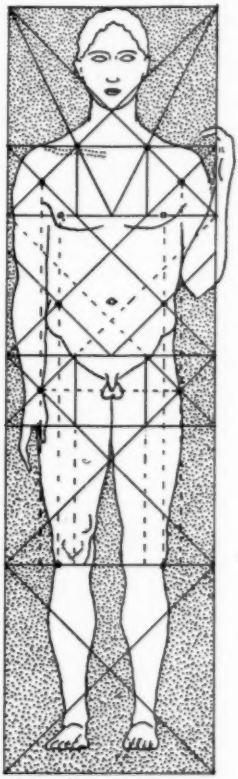

FIGURE 7. FOAT'S GEOMETRIC MAN

of greatest common factor—with which to measure the elements of his design. He would soon discover that the height of the head is repeated approximately in the distance from the chin to the pectoral muscles, and from there to the navel, in the width of the waist, in the width of the legs at the knees. The width of the neck he found to be about one half of this unit; the width of the shoulders he at first made equal to two units, as is shown by the statues from Thera and Delphi.

Later, as in the Apollo of Tenea, he reduced this excessive breadth of the shoulders; but, by freeing the arms from the sides, he was still able to conform to the scheme. The division of the module into thirds may well have resulted from the observation that the upper half of the human figure has one central axis, whereas the lower half has two axes placed so as to divide the total width into three approximately equal parts, as shown in Fig. 6. The width of the thighs (two thirds of the total width) follows automatically. And it was reasonable to give the chest this same width. The division into thirds proved useful also in fixing the level of the clavicles (which are clearly marked on the statues from Thera and Tenea); and it enabled the sculptor to depart from even multiples of the unit in determining the total height of the figure. All the elements of this primitive canon could be expressed in an easily constructed geometrical diagram, without resort to arithmetical computations. That it represents a fairly satisfactory approximation to the actual proportions of the human figure appears from Fig. 7, in which Mr. Foat's "geometric man" is enclosed in the scheme of the Apollos of Thera and Tenea. The only important divergences are in the width of the waist and the length of the legs.

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THE HOUSE OF CALIGULA

[PLATES X AND XI]

"A PART of the palace he built out as far as the Forum, making the temple of Castor and Pollux its vestibule."[1]

"And cutting a passage between the images of the gods, he made an entrance through the temple into his palace."[2]

"When he stood upon his royal palace and threw gold and silver pieces of money among the people, he might have been pushed down headlong, because the top of the palace that looks towards the Forum was very high." (Translation of W. Whiston.)[3]

So much only have the ancient writers told us directly concerning the great palace which, by reason of its vastness and splendor, formed no unworthy link in the chain of lofty structures by which, according to Pliny,[4] Caligula "encompassed the city as with a wall."

The general position of this half-mythical palace as indicated by these writers is clear. Its exact limits, however, as well as its specific plan, though the subject of much discussion, have remained an unsolved problem, owing in part to the lack of definiteness in the statements of the ancient writers themselves and in part to the destruction wrought by nature as well as by the hand of man. Concerning the southeastern limit of the Forum itself—which, according to Suetonius, formed the boundary of the new structure in this direction—our knowledge is somewhat uncertain. The temple of Castor, which Caligula turned into an entrance-court to his palace, lay, as we know, "inside the Forum."[5] Since, however, the neighboring basilica Julia was regarded as "on" not "in" that area, the line bounding the Forum towards the Tiber must have lain immediately beyond or but a little further to the south of the two monuments, coinciding probably, as is generally held, with the street in their rear. Toward the Velabrum, the new palace cannot have extended beyond the vicus Tuscus, with which it agreed in orientation, though it is possible that this street was spanned at that period by a bridge leading to the roof of the basilica Julia, since

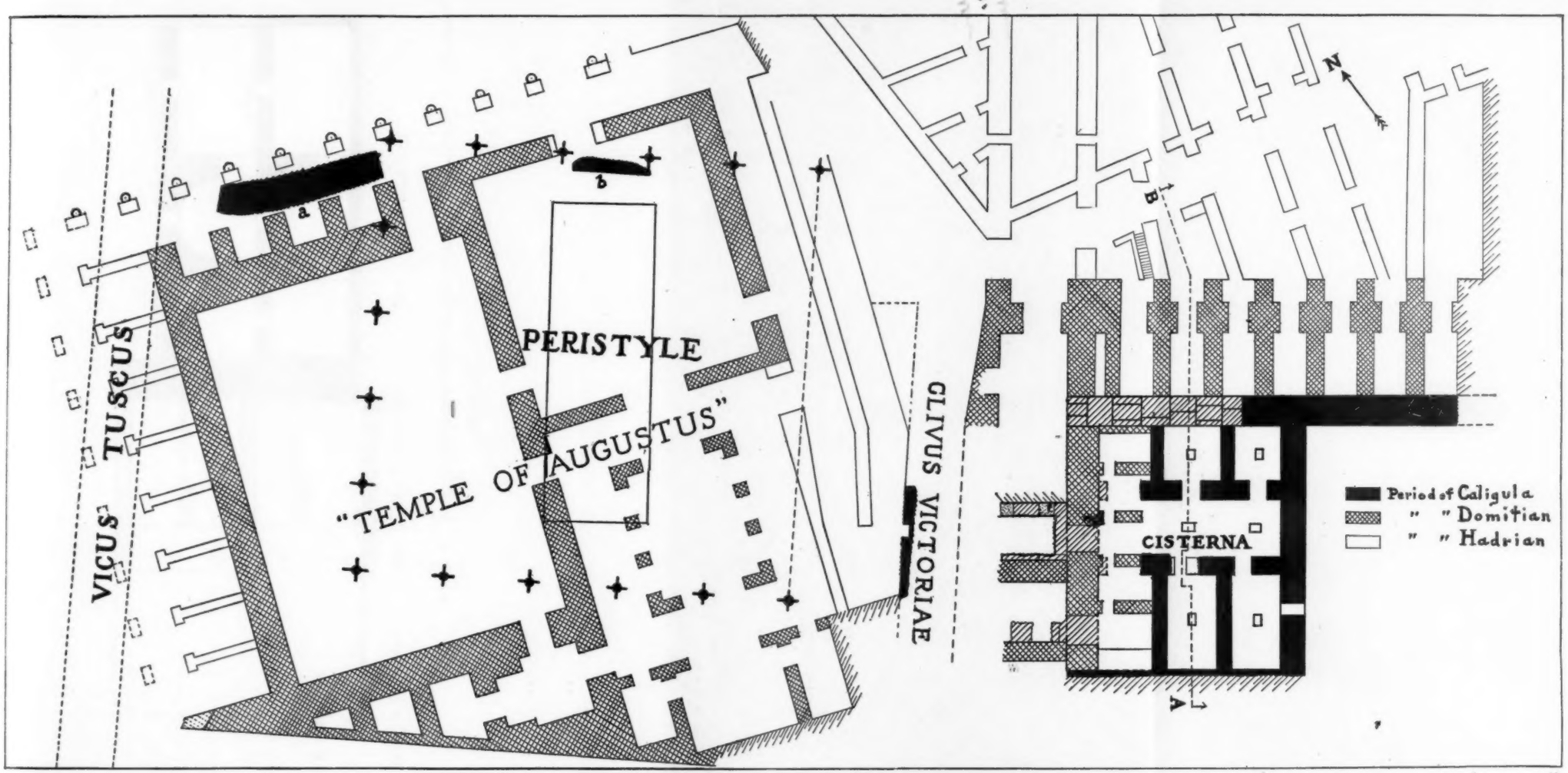
[1] Suetonius, *Caligula*, 22; *partem Palatii ad Forum usque promovit, atque aede Castoris et Pollucis in vestibulum transfigurata.*

[2] Cass. Dio, LIX, 28; *τό τε Διοσκούρειον . . . διατεμὼν διὰ μέσου τῶν ἀγαλμάτων ἔσοδον δι' αὐτοῦ ἐς τὸ παλάτιον ἐποιήσατο.*

[3] Josephus, *Ant. of the Jews* XIX, 11 (71); *καὶ ὑπὲρ τῆς βασιλικῆς ἱστάμενον καὶ τῷ δήμῳ χρυσίου καὶ ἀργυρίου χρήματα διαρριπτοῦντα ὥσαι κατὰ κεφαλῆς (ὑψηλὸν δ' ἐστὶ τὸ τέγος εἰς τὴν ἀγορὰν φέρον). . . .*

[4] *N.H.* XXXVI, 111; *bis vidimus urbem tutam cingi domibus Gai et Neronis.*

[5] Cicero, *De N.D.* XXXIV, 13.



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VAN DEMAN

PLATE X: GENERAL PLAN SHOWING PERIODS

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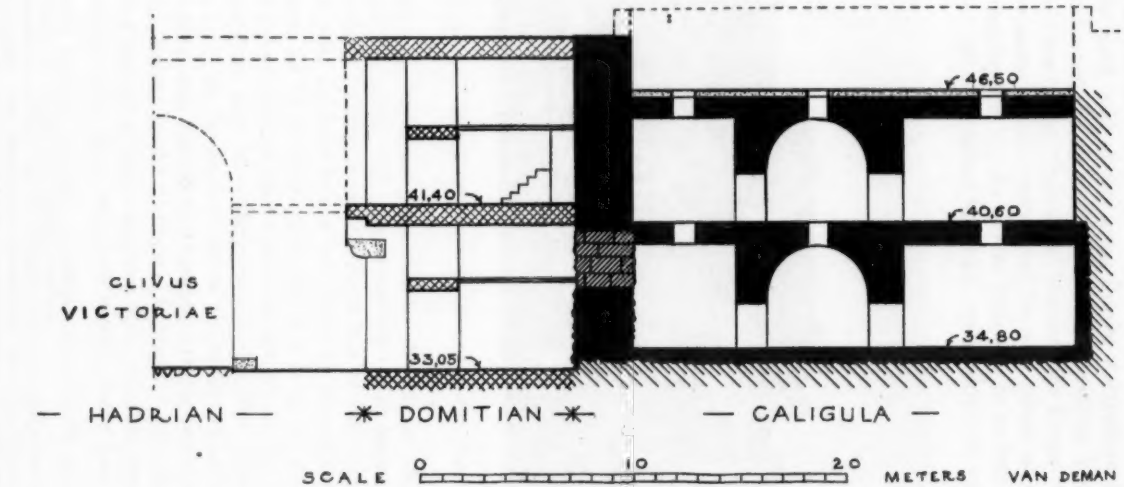

PLATE XI

the emperor showered his largess upon the crowds below from this building[1] as well as from his palace. Along the southwest side, the line of the back wall of the great horrea Agrippiana formed the fixed limit for the site up to if not beyond the clivus Victoriae.

The front line of the "Palatium" towards the Forum, from which the venturesome builder pushed out his new palace as an advance post, or frontispiece, to the earlier Palatine, is no less difficult to determine. Of the original hill itself, upon which the earlier palace

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FIGURE 1. THE NORTHWESTERN CORNER OF THE PALATINE

stood, but few traces are now visible. So far as identified they consist, on the north,[2] (1) of a crumbling bit of *cappellaccio* under the later ramp leading from the Nova Via to the clivus Victoriae, 12 meters from the later line of the Via and a few centimeters above it, at about 23.50 m. a.s.l.; and (2) of a piece of a soft, friable, yellowish-brown tufa or clay about 50 meters to the southeast of the *cappellaccio* and 10 meters further up the slope, at about 33.50 m. a.s.l., at the back of one of the lower rooms belonging to the lofty structure behind the hanging portico commonly, though incorrectly, known as the "bridge of Caligula." On the side facing the Capitol, though at some distance, it is probable, from the corner of the original hill, more extensive remains have been brought to

[1] Suetonius, *Caligula*, 37; *quin et nummos non mediocris summae e fastigio basilicae Juliae per aliquot dies sparsit in plebem.*

[2] The general line of direction of the region, as of the earlier structures, is northwest to southeast. For the sake of convenience, however, the slope of the Palatine towards the Sacra Via will be spoken of in general as north and that towards the horrea of Agrippa and the Tiber as south. The portion of the region towards the domus Augustana may be regarded, moreover, as east and that towards the Capitol as west.

light in recent years, at the level of the Forum, in the scarped but disintegrating *cappellaccio*-rock behind the horrea of Agrippa. Along the clivus Victoriae, for which an artificial terrace seems to have been cut along the slope, the original cliff is at this point buried behind the later structures, though, further to the south, the sharp line of its scarped surface has been brought to light by the fall of its enveloping wall of concrete. The palace of the period previous to that of Caligula, no less than the hill itself, has been almost wholly swallowed up in the later structures. On the side towards the north, no remains of that period are at present traceable, except a few broken walls faced with reticulate of the Augustan type at some distance to the east and parallel to the line of the earlier Nova Via, though at a higher level. Along the west slope, however, a number of meters above the Augustan clivus Victoriae but on the line of the later structures of Caligula and Domitian, a few remains have fortunately been preserved of a row of earlier rooms, which, from their relation to the structures adjoining them and their construction, may be assigned to the preceding period and belong probably to the house of Tiberius or of Germanicus, which, according to Josephus,[1] immediately adjoined the new palace. While no certainty is at present possible, we may accept the line of the northern front of these rooms as, in all probability, marking roughly the northwestern front of the "Palatium" of the period preceding that of Caligula and also the limit of the original hill in that direction. The correctness of this assumption is shown more clearly by the fact that no remains have been found beyond this line of the row of shops bordering the clivus Victoriae of the Augustan period on the east—or indeed of the horrea Agrippiana below, of which they form a part.

In this irregular space, the "no man's land" between the Forum and the Palatine, bounded, as we have seen, on the north by the precinct of Juturna and the temple of Castor, at the lower level, and the clivus Victoriae above, on the west by the vicus Tuscus, and on the south by the horrea Agrippiana, with the domus Tiberiana at the upper level, which formed also, it is probable, its eastern boundary, lay the famous new house of Caligula and its successors, the no less splendid buildings of Domitian and Hadrian. This space, which forms an irregular trapezoid, measures roughly about

[1] Josephus, *Ant. of the Jews*, XIX, 15; *παρῆσαν εἰς τὴν Γερμανικοῦ μὲν οἰκίαν τοῦ Γαίου πατρός, ὃν τότε ἀνῃρήκεσαν, ἀνημμένην δ' ἐκείνῃ διὰ τὸ ἓν τὸ βασίλειον ὂν ἐποικοδομαῖς ἑκάστου τῶν ἐν τῇ ἡγεμονίᾳ γεγονότων αὐξηθὲν ἀπὸ μέρους ὀνόματι τῶν οἰκοδομησαμένων ἢ καί τι μερῶν οἰκήσεως ἀρξάντων τὴν ἐπωνυμίαν παρασχέσθαι.*

"They (the slayers of Caligula) came to the house of Germanicus, Gaius' father, which house adjoined the palace: for while the edifice was one it was built in its several parts by those particular persons who had been emperors and those parts bore the name of those that built them or the name of him who began to build any of its parts." (Translation of W. Whiston.)

115 to 120 meters from east to west. Its extent from north to south is about 57 meters in the lower portion, though only 25 meters above the clivus Victoriae, by which it is divided into two somewhat unequal parts. The general orientation of the site, as of the earlier structures as a whole, is northeast to southwest, conforming closely, it is clear, to the line of the original slope of the Palatine above,—a line of direction maintained, at least in part, by the vicus Tuscus and the buildings beyond until a very late period, despite the influence of the new orientation of the neighboring monuments of the Forum, as is shown by the fragment of the marble plan of the Severan period.[1] From this orientation, the later buildings at the lower level differ markedly, being made to agree with the later line of direction of the south side of the Forum of the Augustan period.[2] The orientation of the upper portion of the region remains unchanged. The general level of the lower half of the region of what we may call the present period is approximately that of the lower end of the Forum,[3] which is about 12.60 m. a.s.l., rising at the junction of the clivus Victoriae with the ramp leading from the Nova Via to the Palatine, to 32 to 33 m. a.s.l. The top of the earlier remains beyond the clivus is about 46.75 m. a.s.l., corresponding roughly to the level of the later buildings of Domitian, which rest upon them.

During the earlier centuries of our era, the small church of S. Maria Antiqua was built into the smaller rooms behind the great hall of Domitian adjoining the vicus Tuscus, known commonly as the "temple of Augustus." This church was, however, abandoned in the ninth century by reason of the menacing condition of the overhanging walls on the Palatine above as well as, possibly, of the deadly miasma arising from the sluggish open stream which had replaced the ancient Cloaca Maxima near by. Several centuries later, in the thirteenth century, the small basilica of S. Maria Liberatrice, or by its more formal name, *S. Maria libera nos a poenis inferni*, was built almost on the exact site of the older church, not without much damage to the earlier structure below. Protected by these two churches and the buildings connected with them, the center at least of the region suffered much less than the Forum and the Sacra Via at the hands of the Vandals of the Middle Ages and from the encroachment of later buildings. In the middle of the sixteenth century, however, the large hall to the west fell a victim not only to private greed but more especially to the fury of

[1] *B. Com. Rom.* XIII (1886), p. 159. Cf. Lanciani, *Ruins and Excavations*. Fig. 47.

[2] For the orientation of the buildings on the south side of the Forum, see Van Deman, "The Sullan Forum," *J.R.S.*, 1922, p. 2 and Plan I.

[3] For the levels of the Forum, see *op. cit.* pp. 1 ff. and Plate II.

the seekers after travertine and marble for St. Peters,[1] suffering, according to Lanciani,[2] more than any other of the great ancient monuments. At this time also Ligorio made his plan of this hall, concerning the value of which no little discussion has arisen. In 1702, in the search for marble, the older church, already 20 *palmi* or more below ground, was, according to Valesio[3] and other witnesses,[4] made accessible for a short time but again covered up.[5] In 1868, as a result of the discovery by Nardoni of the account of Valesio just referred to, an attempt was made to bring to light once more the buried church, but with no permanent results.[6] At a little before this time, during the important excavations conducted by Rosa on the Palatine in 1862 and the following years, an attempt was made to carry the excavations to the ancient level along the course of the clivus Victoriae near the corner above the church of S. Maria Liberatrice and in the buildings above and to the south of this street. The series of rooms behind the so-called "bridge of Caligula," which had, up to that time, been buried almost to the top of the vaults of the upper story,[7] was laid bare to below the vault of the lower story, and the portico along the front of the rooms, the famous "bridge of Caligula," was seen for the first time.[8] The rooms behind the heavy wall against which the later rooms had been built, belonging to the great water-reservoir of Caligula to be described later, although not fully excavated, were included in the plan made by Rosa at this time,[8] though without any reference to them in the text. They had, however, been seen and briefly described by Nibby as far back as 1838 in his suggestive account of the whole region, in which he says:[10] *Fra gli anditi di queste sustruzioni uno più vasto degli altri, e più regolare annerito dal fuoco che vi hanno acceso nei tempi moderni è una vasta conserva di acque a due piani communicanti fra loro con abbaini, e divisa in sei ambienti. Questa è nel lato che domina la Curia Ostilia* (the west hall of the building of Domitian below) *nel Foro Romano.* In 1885, in connection with the extensive excavations of that period, a passage-way, held, from its frescos, to belong to the 7th or 8th century, was discovered, 5.50

[1] Lanciani, *Ruins and Excavations*, pp. 247–48.
[2] Lanciani, *Storia degli Scavi* II, p. 264.
[3] Cancellieri, *Solenni Possessi*, p. 370, ap. De Rossi, *Bull. arch. Crist.*, 1868, p. 16.
[4] Galletti, Vatican Library, Chron. Miscell. XXXIII, ap. Lanciani, *Ruins and Excavations*, p. 123. *Archivio dei Notari delle acque e strade*, 1702, Vol. 106, c. 281, ap. Lanciani, *B. Com. Rom.*, 1900, pp. 25–27.
[5] For a view of the region in 1750, see Hülsen-Carter, *Roman Forum*, p. 173, Fig. 98.
[6] *Bull. arch. Crist.*, 1868, p. 16.
[7] For the view of this site just before the excavations, see Reber, *Die Ruinen Roms*, (1879), plate opposite p. 62.
[8] *Bull. dell' Inst.*, 1862, p. 232. *Ann.*, 1865, p. 366.
[9] *Mon. dell'Inst.* VIII, XXIII, 1.
[10] *Roma Antica* (1839), II, p. 476.

meters below the modern level, which had been cut through the eastern wall of the great hall to unite it directly with the early church in its rear.[1] In these same excavations, of which the atrium Vestae and the Nova Via formed a conspicuous part, the upper half of the region under discussion was also included to some extent, though without any important discoveries. The pavement of the clivus Victoriae was, however, laid bare behind the church of S. Teodoro.[2] In 1900 the church of S. Maria Liberatrice was finally purchased by the Italian government and scientific excavations were carried on, during this and the following year, under the skilful direction of Director Boni.[3] Of the remarkable discoveries made during these excavations, directed no longer to the destruction but to the preservation of the monuments, little need be said in general, since their importance for the history of the early empire no less than for that of the early church is well recognized. The lofty walls of the later periods both in the lower and the upper portions of the region were laid bare to their foundations, the mountainous mass of which still first strikes the eye of the visitor on entering the Forum (Fig. 1). At the lower level, between the low-lying lines of the vicus Tuscus and the atrium Vestae stands out the solid square mass of the so-called "temple of Augustus," while, further to the east and high above the region of the Sacra Via, massive foundations and substructures, towering brick-faced walls and soaring arches rise, in unbroken succession, to the platform almost 40 meters above on which once stood the great palace, with the lofty, vaulted corridors of the broken ramp in the center, by which Hadrian bound the two separate structures of the previous period into one architectural whole. The splendid, though broken, remains of the later periods at the higher level were, also, for the first time fully brought to light and the course of the clivus Victoriae of the imperial period with the shops along its east side made clear by the removal, in some part, of the débris by which it had been concealed for so many centuries.

Beneath the majestic remains of the one-time splendid monuments of the period of Domitian and Hadrian, the spade of the excavator brought to light, at this same time, the widely scattered though not inconsiderable remains, also, of a no less magnificent group of structures at the foot of the Palatine, which from their colossal proportions as well as from their site were recognized as belonging to the famous palace of Caligula,[4] while a few broken walls

[1] *Not. Scav.*, 1885, p. 156.
[2] *Not. Scav.*, 1886, p. 512.
[3] *B. Com. Rom.*, 1900, pp. 25–27; 1901, pp. 299–320; 1903, pp. 230–36. *Röm. Mitt.*, 1902, pp. 74 ff.; 1905, pp. 82 ff. For the general appearance of the site previous to the beginning of the excavations, see *Not. Scav.*, 1900, p. 227, fig. 5. *B. Com. Rom.*, 1903, fig. 116.
[4] Boni ap. Vaglieri, *B. Com. Rom.* 1903, p. 201 n. 2. Ashby, *Cl. R.*, 1901, p. 329.

were found, a decade later, of a modest dwelling of the Augustan period at a still lower level.

Of this earlier structure, the walls of which have suffered equally at the hands of the builders of both of the great monuments beneath which they were found, a few scanty remains are left (Fig. 2). The most important of these remains, which lie over a meter below the level of the pavement of the great monument of Domitian above, at about 14.50–14.60 m. a.s.l., which for the sake of convenience

FIGURE 2. AUGUSTAN REMAINS NEAR THE VICUS TUSCUS

we may call the present level, consist, as seen in 1911–12, of a few fragmentary walls a little more than half a meter in height (Fig. 2). These walls, which have been broken off to the general level of the new structure by which they were destroyed, belong to a group of small rooms, 10 meters from the line of the republican vicus Tuscus to the west of them. While it is possible that these small rooms may have originally been used as shops, their distance from the street renders it more probable that they belonged rather to one of the private houses by which this space, adjoining the Forum as well as the slopes of the Palatine above, was doubtless occupied before the rise of the great imperial buildings of the later periods. The size and extent of the house to which these rooms belonged cannot be determined at present, owing to the insufficient data at our command. It is clear, however, that it was of very modest proportions.

Its orientation is that of the earlier period and conformed to the general line of direction of the republican vicus Tuscus, the course of which is clearly shown by the west wall of the horrea Agrippiana further to the south, along which it ran, as well as by the line of the earlier sewer described below. The existing rooms, which are two in number, are about 4.50 meters in width, according to the valuable plan of Delbrück made in 1914.[1] Their length cannot be determined, since they have been in great part destroyed on the side towards the vicus by the huge foundation wall of the so-called "temple of Augustus," as can be seen in the accompanying illustration (Fig. 2), made from a photograph taken in October 1913. The walls are of concrete of the Augustan type[2] faced with tufa reticulate of the same period. The square blocks, or *tesserae*, of which this facing is made are of moderate size and of a somewhat irregular shape. The mortar joints are of medium thickness. In the corner of the room towards the south is a round structure of the same type of construction as the walls with which it is united (Fig. 2), which was intended to carry off the water from the roof above or to contain one of the terra-cotta pipes specially designed for that purpose. Under the porticus to the north of the large hall by which these rooms were destroyed, the scanty remains of a large sewer were brought to light in the earlier excavations (PLATE X), the line of which is in general perpendicular to that of the main sewer beneath the large hall, which will be discussed later (p. 383). That this sewer is to be assigned to this period is rendered practically certain by its relation to the walls of the following period, by which it seems to have been destroyed, as well as by the presence of a fragmentary pavement resting immediately upon it, the elevation of which—13.10–13.15 m. a.s.l.—is considerably below the level of the later structures. The walls of this sewer are of reddish-brown tufa blocks of a good type. To this period or to a little earlier one must be assigned also a small fragment of a tufa wall, one meter below the pavement of the large west hall, seen during the earlier excavations, the purpose of which is not clear.[3] Immediately on top of the ruined walls of the group of rooms just described, the remains were found also of a well preserved herring-bone pavement, which can be seen in Figs. 2 and 3. The foundation, or bed, of this pavement is of concrete of the type called by Vitruvius[4] *structura testacea*.[5] The broken roof-tiles, which form the aggregate, or *caementa*, are laid on their flat side in loose but somewhat irregular courses and the mortar is of the dusky-red type of the Augustan period. The

[1] "*Der Südostbau am Forum Romanum*," *Jb. Arch. I.* XXXVI, Tafel 2.
[2] For this type of concrete, see Van Deman, *A.J.A.*, 1912, pp. 391–92.
[3] Cf. Delbrück, *op. cit.* p. 28.
[4] II, 8, 19.
[5] For the rise and history of this type of construction and its more gene characteristics, see Van Deman, *op. cit.* pp. 390–91, 395, 398–99.

tesserae of the pavement above are of the type of the early empire. While it is possible that this pavement is to be assigned to the period of Caligula, it seems more probable, from its level and its relation to the walls attached to the bases of the columns of that period, that it belonged to an earlier structure. No traces of this earlier period have so far been identified in the upper portion of the region, unless it be a few scanty remains of a herring-bone pavement under the west wall of the water reservoir, though extensive remains have been found along the clivus Victoriae further to the south.

Concerning the colossal structure, about a meter above the remains just described, for the erection of which the whole quarter of humble houses with their traditions of the great republican past was ruthlessly swept away, the data furnished by the modern excavations are fortunately more abundant. The most conspicuous of the remains of this structure which have been brought to light in the lower half of the region is the great water-basin, a little over 8 meters wide, 25 meters long and about 1.50 meters deep, which is still visible, though in a later form, under the smaller hall forming the entrance-court on the north opposite the vicus Vestae. The orientation of this basin, which was recognized almost at once, on its discovery in 1900, as a part of the palace of Caligula—a fact rendered more certain by the finding of a small piece of a broken inscription of the first century in the basin itself bearing a part of the name of that emperor[1]—differs but slightly from that of the building as a whole. At either side of it is a short flight of steps, of which that towards the north was designed probably for an ornamental display of water such as has been found at Pompeii or in the more newly discovered palace of Nero below the domus Augustana of the period of Domitian on the Palatine. The sides of the basin are ornamented by shallow niches alternately rectangular and semicircular in form. Its facing, which belongs, so far as now visible, to a later restoration, is of triangular bricks from 3.80 to 4 cm. thick and of a yellowish-red to a reddish-yellow color, resembling closely in type those of the Claudian or of the early Neronian period found in a number of walls along the Sacra Via of the period previous to the fire of 64 A.D. The floor and the lining of the walls were originally of marble, though the latter has entirely disappeared.

About 13 to 15 meters to the west of this basin and a little more than 3 meters from the north side of the large west hall, a small travertine foundation was found in the excavations of 1900,[2] which agrees in its general orientation with the other remains of this

[1] Hülsen, *Röm. Mitt.* 1902, p. 81 and Beiträge 2 A. G. II, p. 240 n. 18; *Top.* p. 85 n. 109a.
[2] Hülsen, *Röm. Mitt.* 1902, p. 82 and Pl. IVΓ.

period. This small fragmentary structure, the level of which is slightly lower than that of the similar foundation towards the south, consists at present of three travertine blocks, measuring 1.30 to 1.40 meters in length and 72, 73 and 95 cm. respectively in height. While it is possible that these blocks represent a wall of an earlier period,[1] it seems clear that they were used in the period of Caligula as a part of the base of one of the columns of his great peristyle. The contact surfaces of the stones are carefully dressed. The other

FIGURE 3. REMAINS OF THE PERISTYLE OF CALIGULA

sides, with the exception of that towards the east, are, however, left rough. A little more than 14.50 meters to the south and on a line with this foundation but a trifle further from the water-basin, a second foundation of travertine was brought to light, in the excavations of 1911–12, similar to that just described in general type, though a little higher in level (Fig. 3). But one of the original blocks of this foundation is preserved, measuring 1.20 by 1.50 meters in length and width and from 95 cm. to a meter in height. With the exception of the top, all the surfaces of the stone are left in the rough.

During the same excavations, a hole was discovered at a point midway between the existing foundations, from which the large

[1] Delbrück, *op. cit.* p. 28 and Taf. 2.

blocks of a third one had been removed by the mediaeval Vandals. The existence of a similar hole, showing traces also of the removal of a foundation of the same general size, was noted, some years ago, under the north porticus on a general line with those just described and 14.50 to 15 meters from that furthest to the north, by which the Augustan sewer mentioned above (p. 375) had been destroyed. About 7.25 to 7.50 meters to the east of this spot and on a line with a number of broken concrete walls belonging plainly to the same structure, as will be shown below, still another foundation was found, in the earlier excavations, a few meters from the line of the water-basin.[1] Immediately in front of this basin, the considerable remains of still other walls of concrete, or better of *structura testacea*, of the same type as those referred to above point unmistakably to the existence of at least two other foundations, or sub-bases, 7.25 to 7.50 and 14.50 to 15 meters further to the east and on a line with those just mentioned.

Between these foundations, or sub-bases, as well as beyond them to the north and west, a number of broken fragments of concrete walls or of massive foundations for pavements have been found at various times. In the excavations of 1900–01, several such pieces were brought to light under the porticus on the north of the later building, two of which were noted by Hülsen in his plan of the new monuments in this region.[2] At the same time, or a little later, a much longer piece of wall, or possibly, of the bed of a pavement, of the same type was found towards the west end of the porticus, which is still in part visible (PLATE X a), while more recently the benevolent feet of the throngs of tourists have restored to us another piece immediately to the north of the great water-basin (PLATE X b). In the excavations of 1911–12, in addition to the more numerous remains of the concrete bed of the earlier pavements above mentioned (pp. 375-6), which are also of *structura testacea*, a few fragmentsof walls were found under the western half of the large hall, which were attached to the travertine foundations of the column base further to the south as can be seen in Figure 3.[3] The greater part of the remains of this kind so far found belong, it is clear, to the concrete beds of pavements of this period or of that immediately preceding it. A certain number of them, however, on the north and more especially on the west, on account of the presence of a regular brick-facing and of their relation to the travertine foundations, which rest upon them or to which they are attached (Fig. 3), may best be regarded as parts of a continuous wall or walls in which the foundation-bases were set—a type of construction found in many ancient

[1] Hülsen, *op. cit.* p. 82 and Pl. IV S.

[2] *Op. cit.* Pl. IV; 1905, fig. 28. The pieces are represented on the plan near the letter "S."

[3] The low courses of brick-faced concrete on the right of the travertine blocks.

monuments, as, for example, in the basilica Aemilia and the basilica Julia of the period of Augustus.[1] Owing to the character of the walls, but few external surfaces and, therefore, few remains of brick-facing have been preserved. A single wall, however, 60 cm. in width and faced on both sides was found, some years since, under the north porticus, which may well have been the side wall of a shallow sewer traceable beside it.

The type of construction of the walls, which is that used consistently throughout the whole structure, is *structura testacea*, common alike to the periods of Augustus, Tiberius and Caligula, but which yields place, after the time of Caligula, to the typical Roman construction, brick-faced concrete. The general technique of the walls is less careful than in the preceding periods, due in part, possibly, to the haste characteristic of the whole structure. The *caementa*, or aggregate, are wholly of roof-tiles, easily recognizable from the numerous traces of the broken flanges still visible, which are laid in somewhat close but irregular courses. The mortar is of the dusky-red type characteristic of the general period,[2] though more often approaching a reddish-brown or a reddish-gray. It is of coarse composition and very friable. The facing is likewise of broken roof-tiles, roughly trapezoidal in shape with evenly sawed fronts. On account of the character of this material,[3] the bricks not only vary greatly from each other in thickness but the two ends of the same brick very frequently show a marked difference. The thickness of the small number of bricks preserved in these walls varies from 3.5 to 4 cm., though, at times, reaching 4.5 cm. or more. Out of the 35 measured, 30 are between 3.5 and 4 cm. Their length is from 20 to 25 cm.[4] The color of the bricks in general is not far from that typical of the tile-bricks of the Augustan period, which is an orange-red varying in hue from the "dragons-blood red"[5] to the "ocher red" of Ridgeway.[6] It is, however, slightly more pinkish in tone, at times approaching salmon. Both the horizontal and vertical mortar joints are very irregular. The horizontal joints vary commonly from 1 to 1.5 cm. and are very crudely raked.

Twenty meters beyond the east line of the water basin, against the side of the Palatine, considerable remains of an earlier wall of the period of Caligula were discovered in 1900, the preservation of which was due to its incorporation in one of the walls of the magnificent ramp first brought to light at that time (PLATE X), as can be seen in the accompanying illustration (Fig. 4), made from a photograph courteously taken for this article by George R. Swain of the

[1] See Van Deman, *A.J.A.*, 1913, p. 19 and n. 4, with fig. 3.
[2] Van Deman, *A.J.A.* 1912, pp. 395–96 and 399.
[3] *Op. cit.* p. 395 and n. 4.
[4] For the earlier periods, see *op. cit.* p. 395 and n. 5 with fig. 1; p. 398 and n. 7.
[5] Robert Ridgeway, *Color Standards* and *Color Nomenclature*, Pl. XIII, 5^{1}.
[6] *Op. cit.* Pl. XXVII, 5″.

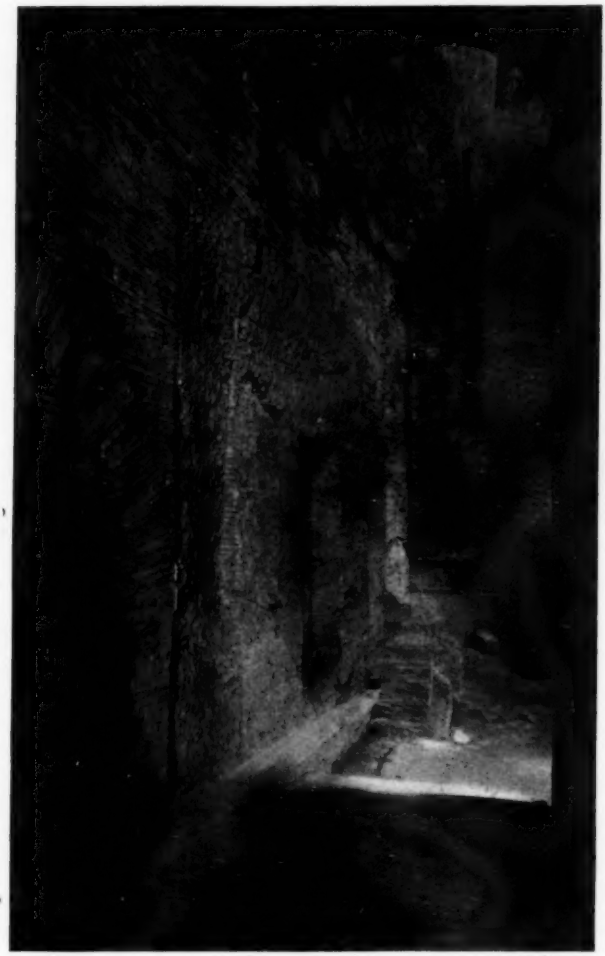

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FIGURE 4. WALLS OF THE PERIOD OF CALIGULA AND HADRIAN

Near East Expedition of the University of Michigan. Though the general orientation of these remains, which are visible in the wall at the back of the first landing of the ramp, like that of the rest of the structure to which they belong, is northeast to southwest, its actual line of direction lies a trifle more nearly east and west than the main axis of the peristyle, a variation due clearly to the line of the clivus Victoriae, the west side of which rises directly above it.

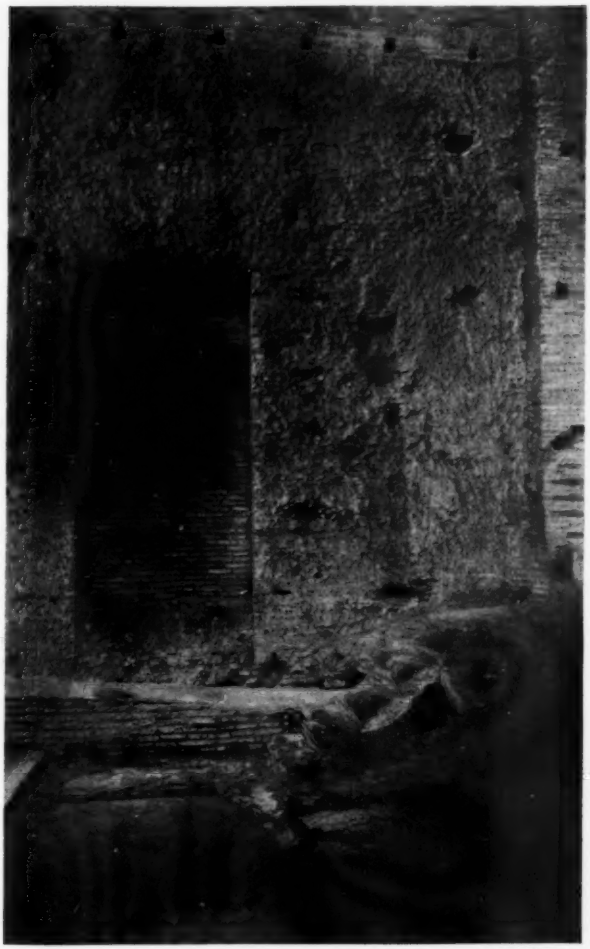

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FIGURE 5. REMAINS OF A WALL OF THE PERIOD OF CALIGULA

The extent of the original wall cannot now be determined, since the end towards the south is concealed by a later cross-wall,[1] while that towards the north has been broken off in the erection of the new structure.[2] Its present height above the level of the peristyle, of which it formed a part of one of the enclosing walls, is at least

[1] See Pl. X and fig. 4. Cf. Delbrück, *op. cit.* p. 28 and Taf. 4 A.
[2] See fig. 4. Cf. Delbrück, *op. cit.* p. 28 and Taf. 4 A and B.

10.50 meters (about 25 m. a.s.l.).[1] The portion of the wall towards the south, 1.85 meters in length, which lies in the exact line of the later wall, has been preserved intact. The adjoining portion, on the other hand, about 7.50 meters long, the front of which lay originally a trifle further to the west, has been cut back to conform to the line of the new wall of the ramp of Hadrian, as can be seen in the accompanying illustrations (Figs. 4 and 5). In this portion of the wall, the back part of a rectangular niche is still preserved, which is admirably shown in the accompanying figure (Fig. 5). It is 1.65 meters (5½ Rom. ft.) wide and, at present, 50 to 55 centimeters deep. Its original height cannot now be determined, but it was not probably more than 3 to 4 meters above the level of the peristyle. The traces seem still clear, 1.75 meters to the north of this niche, of a larger one, or possibly of an apse, which was filled in at some intermediate period between that of Caligula and Hadrian. It is possible, as suggested by Delbrück,[2] that a second smaller niche corresponding to that still left existed originally towards the north, though no traces of it remain.

The type of construction used in this wall, which, as stated above, is *structura testacea*, differs but little in details from that of the walls of the colonnade towards the west, except in its better preservation. The mass as a whole lacks compactness and the quantity of *caementa*, or aggregate, is insufficient (Fig. 5). The technique is a trifle less crude than that of the walls of the colonnade, though lacking in a striking manner the fineness and painstaking care of the preceding periods of Augustus and Tiberius.[3] The *caementa*, which are of roof-tiles with no admixture of tufa, travertine, marble or triangular bricks are of medium size and are laid in somewhat irregular rows, or courses. The mortar is of coarse composition and very friable. In color it is reddish-brown to a reddish-gray, instead of the distinctive dusky-red of the Augustan period.[4] The *arena*, or better *pozzolana-arena*, which seems of an inferior quality, is very *terrosa*[5] and seems not to have been either screened or washed. Its prevailing colors are reddish-brown and gray with a slight admixture of black and white particles. It is, as a rule, of medium fineness. The lime is not over-clean and very insufficient in quantity. The facing, as throughout the whole structure, lacks the evenness and regularity of the earlier as well as of the later roof-tile facing. The bricks, which reveal their origin, as elsewhere, by the traces of their broken flanges, vary greatly both in their thickness and in their length.

[1] Cf. Delbrück, *op. cit.* p. 29.
[2] *Op. cit.* p. 28, Abb. 7.
[3] For a wall of the period of Augustus, see Van Deman, "*The So-called Flavian Rostra*," *A.J.A.*, 1909, fig. 3.
[4] Van Deman, *A.J.A.* 1912, pp. 391–92.
[5] For the meaning of this word as used by the ancients, see Vitruvius *De Architectura*, II, 4, 1.

They are normally from 3.5 to 4 cm. thick, but not infrequently reach 4.5 cm. The average thickness of 50 which have been measured exactly[1] is 4 cm. They show little more regularity in their length, varying from 20 to 30 cm., as a rule, though often, owing to their origin,[2] exceeding 35 cm. Of the 50 specially measured, 15 are more than 30 cm. long. Their color is in general, as in the walls described above (p. 379), orange red,[3] approaching a salmon. It is much lighter in tone than that of the earlier roof-tiles and shows none of the tendency to dark purple so common in the Augustan period. The horizontal mortar joints vary from 1 to 2.5 cm. The average width of 50 is 1.5 cm. The vertical joints show but little less variance, running from half a centimeter to 2.5 cm. The horizontal joints are commonly, though very carelessly, raked. Bonding courses, which mark so conspicuously the neighboring walls of Domitian and Hadrian (Fig. 8), do not appear.

Further to the north and in the same general line of direction as the wall just described, considerable remains have been found of a retaining wall which Delbrück[4] held of this or of an earlier time. The data accessible at present are too inconclusive to allow any definite decision concerning it. The portion of this wall, however, at the eastern end of the porticus on the north and below the ramp leading from the Nova Via to the Palatine, seems, in all probability, to belong in part to this period.

Beneath and closely connected with the peristyle, the remains of which have just been described, a number of sewers have been discovered at various times, several of which, from their orientation and type of construction, may well be assigned to this or to an earlier period. The most important of these sewers crosses the great western hall diagonally, maintaining the older orientation, and empties into a sewer below the vicus Tuscus, which is of a very old type and conforms to the line of direction of the earlier time.[5] Concerning the smaller sewer under the later ramp, the orientation of which agrees in general with that of the larger one just mentioned, the evidence is less clear, though the construction as reported[6] appears to be at least earlier than Domitian. The possible remains of a small sewer seen some years ago under the porticus on the north, the line of which is parallel to the main sewer under the large hall, belongs most certainly to this time.

High above the remains of the structure so far described, which

[1] Bricks are measured, in all cases, in representative groups of 10 selected from different parts of the monument in question.

[2] For the importance of the length of the bricks in the analysis of brick-faced concrete monuments, see Van Deman, *A.J.A.* 1912, p. 402, n. 5; 406 and n. 1. Cf. 395, 420 and n. 2, 425 and n. 2.

[3] For the more exact definition of the color, see p. 379.

[4] *Op. cit.* p. 29 and Taf. 4.

[5] For this sewer, see Delbrück, *op. cit.* p. 31 and Taf. 2.

[6] *Op. cit.* p. 30.

lie practically at the level of the Augustan Forum, buried deep below the once towering walls of the later imperial palaces above, certain other important remains have been brought to light which, from their relation to the adjoining monuments, must be accepted also as of the period of Caligula. Unlike the widely scattered and fragmentary remains of the peristyle below, those at the upper level consist of a solitary block of concrete vaults, about 20 to 20.50 meters (approximately 70 Rom. ft.) long and over 23 meters (78 Rom. ft.) wide, composed of a group of lofty chambers, three stories high, forming a single unit both architecturally and structurally (PLATES X and XI). On the north and, originally, on the west also, this group of rooms, recognized by their peculiar plan and more especially by the low doors between the rooms and the small rectangular openings in the ceilings for the circulation of the water as a reservoir, or *cisterna*, was supported by a massive wall 2.50 meters (8½ Rom. ft.) thick, designed alike to resist the pressure of the great volume of water of the reservoir in its rear and to serve as an imposing front for the whole hill towards the Forum.[1] No certain remains of this wall have been so far identified on the west, unless it be a small fragment of a concrete foundation under the later wall mentioned below. On the north, however, where it has been, in great part, preserved by the erection by Domitian, a half century later, of the famous frescoed rooms of the imperial guard, with their hanging portico (Fig. 6), it rises, without windows or doors, over 15 meters above the clivus Victoriae, along which it extended towards the east and south. It was composed (1) of a lower foundation of concrete about 2.80 meters high, a small part of which has recently come to light, (2) of an upper foundation of rough, unhewn travertine blocks, 2.60 meters (9 Rom. ft.) high, and (3) of the regular wall of *structura testacea*, the height of which was not less than 9.60 meters. The lower foundations (PLATE XI), which are scarcely distinguishable from the débris under which they are still, in great part, buried, are composed in the main of a heterogeneous mass of refuse materials from earlier buildings forming a crumbling mass of dirty concrete of a grayish color. The *caementa*, or aggregate, consist of pieces of many sizes of tufa of various kinds, of travertine, roof-tiles and pottery. No marble or triangular bricks appear. The mortar, the quantity of which is very small, is of a dirty gray color and very friable. The *arena* shows little or no red *pozzolana* and is very *terrosa*. The proportion of lime is small and it is of a very low grade. Above these concrete foundations, along practically the whole northern side of the reservoir and, possibly the

[1] While it is possible that this wall belongs to an earlier building its close union with the Caligulan walls above make it safe to assume that they belong to the same period.

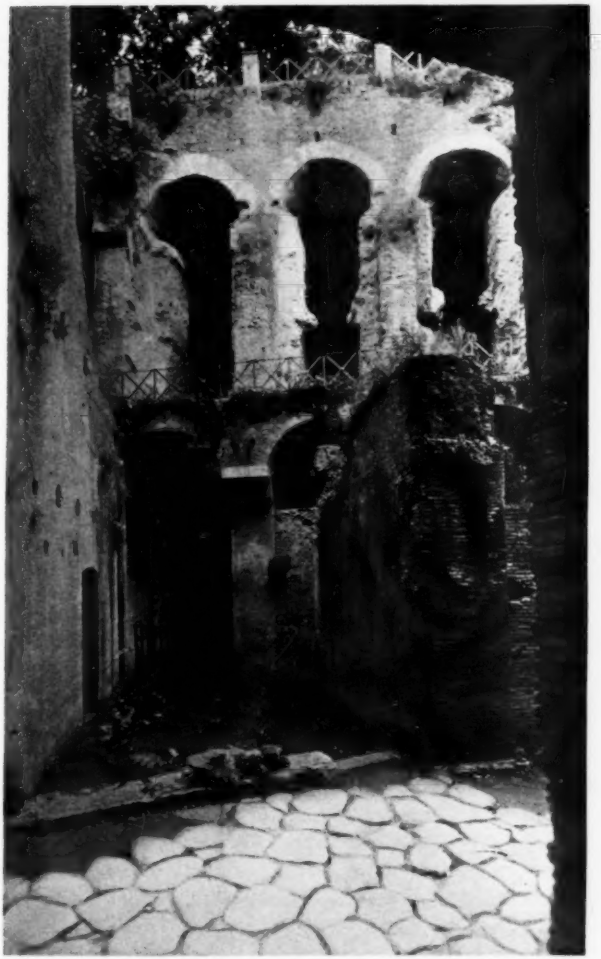

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FIGURE 6. THE ROOMS OF THE IMPERIAL GUARD

western front as well, an upper foundation, or sub-wall (PLATE XI), 2.60 meters (9 Rom. ft.) wide was laid, composed of rude courses of travertine blocks, the top of which corresponds approximately in level with the top of the lower story of the adjoining *cisterna*. No actual remains have escaped the greed of the medieval Vandals, except a few broken fragments. Its record has been, however, infallibly preserved in the concrete lining of the rooms to the south

which were built against it. As shown by this record, the travertine blocks of which the wall was made measure commonly from 75 cm. to 1.25 meters in width and length and are laid with little attention to regular courses. Except on the upper and lower surfaces, the blocks have been left in the rough. On top of these travertine foundations is a wall of *structura testacea* of the same width practically as the foundations (PLATE XI). Five meters from the end of these foundations towards the east, the line of the wall is interrupted by a break about 2 meters wide. Since this break coincides exactly with the eastern line of the *cisterna*, it seems clear that the concrete wall running south which is still visible through the opening represents that beyond the end of the reservoir either in its original or in a later form. The original length of the main wall towards the east beyond this point has not been determined. It is plain, however, that it extended a little beyond the series of guard-rooms, which was built against it, where a broken wall running towards the north may mark its eastern limit. Beyond this point no final analysis of the remains has as yet been possible. Concerning the outer wall on the west of the reservoir our data are few. The coincidence with it, in general position, of the wall of Domitian by which it has been replaced and its relation to the reservoir makes it probable, however, that it agreed, like its successor, with the wall on the north in its general character and massive proportions. The assumption is made more probable by the existence, under the later wall, which rests directly upon it, of a crude concrete foundation similar in kind to that on the north in its haphazard choice of materials and rude methods of handling them. This earlier foundation is, moreover, structurally united to that of the row of rooms along the clivus Victoriae (PLATE X), which seems to belong to the period in question. On the south the lower rooms of the reservoir were built, probably, directly against the rock of the hill, while those of the upper story were attached, as has been shown above (p. 370), to the older house of Tiberius. The structure bounded by these walls, so far as at present accessible, consists, both in the lower and upper stories, of a long central chamber, or corridor, on either side of which are two smaller chambers, with the broken vault of a third. Beyond these rooms to the east lie one or more rooms, the relation of which to those just mentioned cannot be determined at present, owing to the incomplete state of the excavations. The long central corridor in the lower story is at present but 12 meters long, owing to the destruction of the western end of the whole structure by the later building. It is clear, however, from the remains of the smaller room on either side, as well as by the position of the rectangular openings in its ceiling, that its length was, originally, not less than 15.50 to 15.60 meters (52½ Rom. ft.).

Its width is 4.80 meters (16¼ Rom. ft.). Its roof is composed of a barrel vault with a rise of about 2.40 meters (approximately 8 Rom. ft.), the crown of which is 4.80 meters above the line of the herring-bone pavement which has been preserved in one of the smaller rooms on the south. The impressions left by the boards used in the centering on which the vaults were laid are visible in this as well as in most of the other chambers, while the holes for the support of the framework of the centering are also left. The width of the boards is normally from 20 to 25 cm. The side walls of the corridor are very heavy, being 1.50 meters (5¼ Rom. ft.) thick. The wall on the east is not accessible. In the center of the vaulted ceiling are two rectangular openings, 1.20 meters (4 Rom. ft.) long and 1.00 meter (approximately 3½ Rom. ft.) wide, by which the circulation of water between the upper and lower rooms was rendered possible. A third opening existed originally near the west end of the corridor, corresponding to that at 1.80 meters (6 Rom. ft.) from the opposite end. The groups of smaller rooms opening from the corridor towards the north and south do not agree in their general dimensions, that on the north being considerably shorter. The division walls between these rooms are 1.15 to 1.20 meters (4 Rom. ft.) thick. The rooms on the north, which were originally three in number, differ somewhat in size. That to the east is very small, measuring but 4.15 meters (14 Rom. ft.) from east to west, though agreeing with the other two rooms in length, as well as in height. At about 60 cm. from its west wall, the massive travertine foundations described above disappear, being replaced beyond this point by an ordinary wall of *structura testacea*. Owing to the height of the débris not yet removed, the position and size of the connecting door between this room and the corridor are not clear. Its existence is, however, rendered certain by the opening in the ceiling, which is 90 cm. (3 Rom. ft.) by 75 cm. (2½ Rom. ft.) in length and width. The adjoining room towards the west is somewhat larger than that just described, measuring 4.80 meters (16¼ Rom. ft.) both in length and width and also in height. It is connected with the central corridor by a low door 1.50 meters (5¼ Rom. ft.) wide and 2 to 2.20 meters high. The rectangular opening in the ceiling is 90 cm. (3 Rom. ft.) by 75 cm. (2½ Rom. ft.), as in the room adjoining. Of the room to the west but a pitiable fragment of a broken vault remains, concealed behind the later walls and half buried in débris. The length of the room, like that of the other rooms on this side of the central corridor, is 4.80 meters (16¼ Rom. ft.). Its width, so far as can be estimated from the curve of the fragmentary vault and its relation to the other parts of the structure, is about 4.40 meters (15 Rom. ft.). Its height cannot be determined exactly. The rooms to the south of the corridor are very regular in their dimen-

sions. The two which remain are 7.95 meters (27 Rom. ft.) long and 4.35 to 4.40 (15 Rom. ft.) wide. The low door connecting the room towards the east with the corridor is 1.45 to 1.50 meters (5¼ Rom. ft.) in width, while that in the room adjoining has been reduced in a later restoration to 1.03 meters (3½ Rom. ft.) to correspond to the doors of the later period. The rectangular openings in the ceilings measure 90 cm. (3 Rom. ft.) in length and 75 cm. (2½ Rom. ft.) in width. The room towards the west, which corresponded originally, so far as can be at present determined, to those just described, suffered greatly, as did that opposite, at the hands of the later builders, by whom not only was its vault cut in two and broken by the building of the new cross-walls, but its length considerably reduced by the insertion of a heavy wall at its south end. In the further wall of the room towards the east, a door has been discovered, during the desultory excavations of recent years, leading to a room or rooms which are as yet practically unexcavated. Concerning the period of these rooms and their relation to the adjoining reservoir, no final decision is, therefore, possible, though it seems almost sure that they did not belong to the original building.

To our knowledge of the second story of the reservoir, the modern excavations have added but little (PLATE XI). The rooms are half buried in the débris from the buildings above them, as in the time of Nibby, while in several places one still sees the walls blackened by fire as reported by him almost a century ago.[1] The only rooms accessible at present are the long central corridor and the smallest chamber on the north. Of the eastern half of the room towards the west, north of the corridor, the broken vault and a portion of the walls are still left, as can be seen in the accompanying illustration (Fig. 7) in which the curve of the earlier vault is clearly traceable, as well as the walls of the later period against and above it. The existence and general dimensions of the rooms not as yet excavated are, however, plainly shown by the rectangular openings in the ceilings of the corresponding rooms immediately below them. The general plan of the second story agrees with that of the story below. The walls are of the same thickness and agree in their type of construction. The system of communication shows no variance from that of the lower rooms, though but one of the doors is now visible.

In the vaulted ceiling of the central corridor of the upper story two rectangular openings are preserved of the same size and directly over those connecting this corridor with that of the first story. A similar opening is found in the smaller room on the north. It seems clear from the presence of these openings and still more from the existence of the massive wall on the north, which still rises unbroken for a short distance above the top of the second

[1] *Roma Antica* (1839), II, pp. 46 and 60.

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FIGURE 7. A BROKEN VAULT OF THE RESERVOIR OF THE DOMUS CALIGULAE

story, that a third story also existed in the original building (PLATE XI). It is probable that this story was occupied wholly by a single large chamber or by an open basin, since a pavement, 20 to 25 cm. thick of *opus signinum* rests directly upon the vault of the story below. All further traces of it have been, however, destroyed by the walls of the later palace of Domitian, which were built immediately on top of the pavement.

The walls of the reservoir were covered throughout with a layer, 3 cm. thick, of water-proof cement of the type known commonly as *opus signinum* from the place of its origin. This cement, which was used regularly for the lining of all receptacles for water[1] and also, with a slightly larger proportion of lime, for pavements,[2] was made of pounded roof-tiles, or *tegulae*, and lime. The remains of a herring-bone pavement are preserved also in one of the smaller rooms of the lower story on the south of the corridor.

The whole building, with the exception of the travertine foundation wall on the north, is a single structural unit and the type of construction is consistent throughout. The lower foundations, as has been said above, are of concrete of an inferior grade and very friable, differing but little, except in the presence of a small quantity of lime as a binding material, from the masses of débris near by. The *caementa* consist, in the main, of pieces of tufa, travertine and roof-tiles, the refuse from earlier monuments, with a few fragments of broken pottery. They show no regularity in size, varying from very small pieces to those of huge size, and are very unevenly distributed through the mass. The mortar is of a dirty gray type, differing but slightly in general appearance from that of the republic. It is very uneven in composition and very friable. The *arena* consists largely of dark gray and brown *pozzolana* with some admixture of black and white particles. The red *pozzolana* of the walls is noticeably wanting. The lime is of a grayish-white color and of a poor quality.

The walls show but little variance in general type of construction from those of the peristyle below. They are, however, somewhat less loosely built and the quantity of aggregate used is greater. The technique is in general less crude, but lacks the scrupulous care of the better periods. The *caementa*, which are wholly of roof-tiles, are of medium size and are laid in somewhat even rows. They agree in general type and color with the tiles used in the facing. The mortar is of a grayish-red or grayish-brown color. It is very friable and coarse and weathers badly. The *pozzolana-arena* is dark gray or grayish-red to brownish-red with some little white. The particles are of medium size, though with a considerable admixture of dust, showing the lack of careful screening or washing. But little of the facing of the walls is left, since bricks no less than marble became the prey of the ruthless spoilers of the earlier times. The technique of the small part of this facing now visible is very careless and the courses of bricks are extremely irregular. The bricks themselves, the origin of which is revealed clearly by traces of their broken flanges, differ markedly both in their thickness and in their

[1] Vitruvius, *op. cit.* VIII, 6, 14; cf. Pliny, *op. cit.* XXXV, 165.
[2] *Op. cit.* VII, 1, 3.

length. While their normal thickness is from 3.50 to 4 cm., it not infrequently reaches 4.50 cm. The average of 100 bricks taken from different parts of the structure is 3.98 cm. But little more regularity exists in their length, which varies commonly from 20 to 30 cm. though in a few cases exceeding 35 cm. Their color, while not far from the orange-red of the Augustan tiles, is, as has been said (p. 379), more pinkish in tone, approaching, in many cases, salmon. The horizontal joints are very irregular, varying from 1 to 2.5 cm. The average width of 100 is 1.8 cm. The vertical joints vary but little less, running from a half centimeter to two centimeters. The horizontal joints are regularly, though carelessly, raked. Bonding courses do not appear.[1]

The vaults of the building are well preserved, except where they have been intentionally destroyed by the later builders. Those of the lower story have suffered also, at least in color, from the effects of fires made in these rooms in modern times. These vaults are throughout of concrete, but of a type radically different from that employed in the walls and the foundations, both in the materials used and in the methods of handling them. The *caementa* are almost wholly of a friable, granular tufa of a clear yellow type, very different, in structure and in color, from the common grayish-yellow variety used in the vaults near by, which belong to the periods of Domitian and Hadrian. The provenience of this tufa, selected doubtless on account of its light weight, is not sure. The size of the *caementa* is unusually large, reaching often 20 to 30 cm. in length and 5 to 10 cm. in thickness. They are, as a rule, placed lengthwise in the mass and in regular rows. In addition to these tufa *caementa*, a considerable quantity of smaller pieces of pumice-stone appears, to which is due, in part, the extreme lightness of the vaults as a whole. The mortar is of a dirty whitish-gray color not unlike that of the walls. The *pozzolana-arena* used is very *terrosa*. Its prevailing colors are light and dark gray, grayish-brown, brownish-red and brown, with a somewhat unusual amount of white particles. But little of the dusky-red of the Augustan period is present. A considerable number of small pieces of pumice-stone appears. The lime is of a low grade and not overclean. On top of the board centering of the vaults, a thin layer of mortar of an extremely fine composition and light weight was laid, to serve, probably, as a smooth finish to the rougher mass above. The *arena* used in this mortar is almost wholly gray and grayish-brown, with a noticeably large proportion of white particles. The amount of lime used, which is of a dirty white variety, is unusually great.

Along the west side of the reservoir and, as it seems probable,

[1] See fig. 8. The walls on the left are of this period. In the walls on the right, which are of the period of Domitian, bonding courses appear regularly.

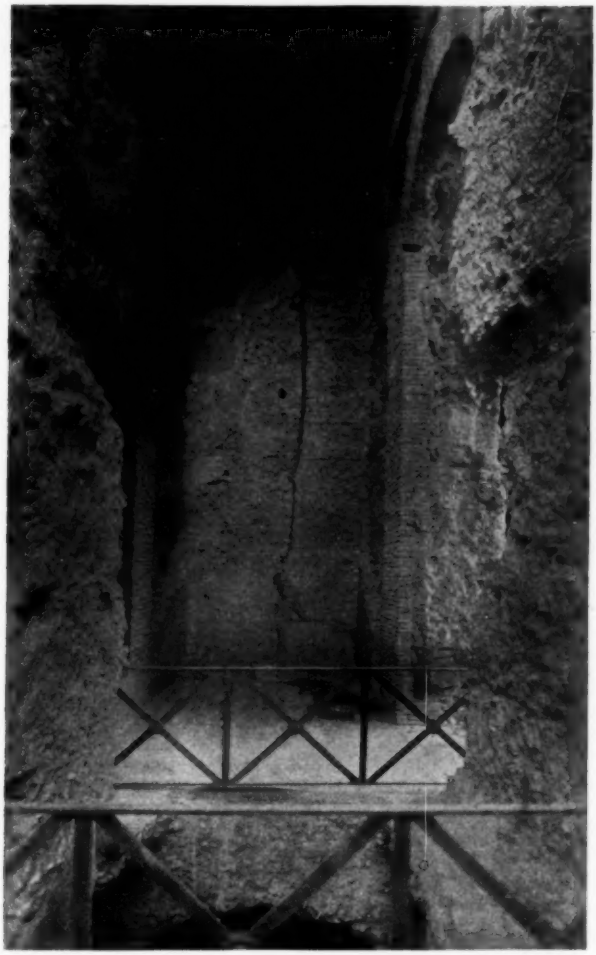

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FIGURE 8. WALLS OF THE PERIOD OF CALIGULA AND DOMITIAN

attached to it, the remains are still traceable of a few walls belonging to a row of rooms or shops opening directly upon the clivus Victoriae (PLATE X). These remains consist, at present, of three disintegrating foundation walls of dusty concrete of the same type as those belonging to the adjoining *cisterna*. The *caementa* are of pieces of tufa and travertine of many sizes, with a smaller amount of roof-tiles. They are thrown promiscuously into the mass with no attempt at regularity. The mortar is of the same dirty-gray

type as in the foundations of the reservoir and is very friable. The proportion of lime is small and it is of a low grade. Into the rough wall furthest to the north are set two bases of travertine, while in the wall in the adjoining room are traces of a similar base. The wall furthest to the south is much broken, but the position of a fourth base is at least suggested by the large hole in the original structure. Concerning the character of this fragmentary building and its relation to the adjoining reservoir, no decision is at present possible.

For the reconstruction of the palace of Caligula, or more strictly, of the magnificent annex to the earlier palace on the hill above by which he united it to the great monuments of the Forum below, the data are, as we have seen, very limited. The new structure was composed, as is clearly indicated by the remains, of an upper and a lower section, divided structurally if not architecturally by the clivus Victoriae. The exact size and shape of the peristyle, which formed the lower half of the new building, cannot be determined with certainty. It is clear, however, from its relation to the adjoining monuments, as well as from the references in the ancient writers, that it occupied almost, if not the whole, of the space included in the lower half of the region. Of the outer walls of this building, but a small part of one, that on the east, which has been described above (p. 372), can be identified. Whether the wall on the north was attached structurally to the temple of Castor, as the ancient author implies[1] in his use of the word *vestibulum* for that monument, or was separated from it by the Nova Via (?), which was spanned by a bridge, is uncertain. The different height of the ground-levels of the peristyle and of the cella of the temple render the latter assumption more probable. On the south the new building was attached directly, it seems probable, to the outer wall of the horrea Agrippiana, or to a new wall substituted for the older one, as in the later period of Domitian. At the west end of the porticus north of the large hall of the later building, the remains are still recognizable of a concrete wall, the western facing of which is still traceable (PLATE X a). The line of direction of this facing is exactly that of the horrea of Agrippa, which, as has been said above, was that of the peristyle. Since, however, it lies at some distance—about 6 meters—from the line of the west wall of that monument and consequently, of the vicus Tuscus, it is probable that the remains in question, though forming a part of the peristyle, are those of an inner wall—belonging possibly to a row of rooms in the rear of the colonnade—and that the outer wall lay a few meters farther to the west. Concerning the height of the building, no evidence has been found, apart from the statement of Josephus that it "was very high"

[1] Suetonius, *Caligula*, 22. Cf. p. 1.

(p. 1, n. 4). It is not unlikely, however, that it agreed nearly with that of the basilica Julia, with which it was probably connected by a bridge, since from the roof of the basilica, as well as from the top of his house, Caligula threw down money to the crowds below.[1]

Around three if not all four sides of the peristyle ran a lofty colonnade, or better arcade, which is still plainly traceable (PLATE X). The line of this arcade on the north is clear, since, as has been seen, considerable remains of it still exist. The width of the corridor in the rear of the façade cannot, however, be determined, owing to the disappearance of all traces of the outer wall beyond. The distance of the arcade, or porticus, from the water-basin, which, in its present form, differs somewhat from it in orientation (PLATE X), was from 3 to 4 meters. The façade consisted of six pillars, four of which are still traceable. On the west the existence of the arcade is no less certain, as well as its general line, at about 19 meters from the vicus Tuscus, which, as we have seen, marked, probably, the wall of the peristyle on that side. The bases of two pillars have been partially preserved as well as the holes from which two others have been removed. The façade on this side consisted of six or possibly seven pillars; the former is, however, more probable. The existence of the porticus on the east is less sure. At almost the same distance from the water-basin as the front line of the porticus on the west and at 9.50 meters from the outer wall, a portion of which is still visible in the later ramp (Figs. 4 and 5), the remains have been found of two small sewers[2] which are parallel to the arcade. While, as has been suggested,[3] it is possible that their presence points to a row of small rooms having the same general orientation, it seems more likely that they followed originally the line of the façade of the porticus beside which they lie. Owing to the lack of excavation, the actual line of the front of the arcade on the south is not known. It seems probable that it lay about 13.50 meters from the back wall of the horrea of Agrippa at approximately the same distance from the water-basin as the arcade on the north. Since no remains of the pillars exist, no exact reconstruction of the porticus is possible. So far as can be determined from the scanty evidence accessible, it consisted of a row of six pillars along the north and south and six or, possibly, seven along the east and west sides. The axial unit is 7.25 meters. The width of the corridor in the rear of these pillars seems to have varied considerably on the different sides.

The center of the open space enclosed by the porticus was occupied by the well-known water-basin, or tank. This basin in its present form belongs clearly to a later reconstruction, as is shown by its

[1] Suetonius, *Caligula*, 37.
[2] Delbrück, *op. cit.* p. 29 and Abb. 7. Cf. Taf. 2.
[3] *Op. cit.* p. 29.

type of construction no less than by its difference in orientation from the rest of the building. Since it is probable, however, that no great change was made in the later restoration, we may safely assume that it differs little, as at present seen, from the original structure.

At the west end of the peristyle under the later portico on the north, the remains still exist of a wall, 5 meters from and parallel to the vicus Tuscus of the earlier period, which may well belong to a row of small rooms opening on the corridor of the arcade. Concerning the upper stories of the building no evidence has been found, and no traces have been discovered of any entrance doors.

To feed the great basin, as well as, probably, the other parts of the new building in general, a great reservoir was built, as we have seen, on the slope of the Palatine twenty meters above, a worthy rival in age if not in size of the better-known *cisterna* on the opposite side of the hill built a few decades later.[1] This *cisterna* consisted (PLATE XI), as has been said, of a single structure three stories in height. The two lower stories were each composed of a group of seven rooms, while the third seems to have been occupied by a large water-basin, or tank, open possibly to the sky (PLATE XI). The circulation of the water was effected by doors between the rooms of the two lower stories, which were, in their turn, united by small rectangular openings in the vaults of the rooms below. The basin was united with the rooms of the second story in a similar manner. No remains have been so far identified either of the inlet or of the outlet of the reservoir. To resist the enormous pressure of the volume of water, the walls of the *cisterna* on the north and east and presumably on the west as well were of unusual thickness (see p. 384). The pressure on the south side, at least in the lower story, was borne by the mass of the hill against which the structure was built.

Of the structural link by which the lower and more splendid portion of the great building was connected with the upper half and with the earlier palaces adjoining it, no sure remains have been so far discovered. The existence of a ramp such as that by which Hadrian bound together the corresponding parts of the later building is rendered impossible by the coincidence in position of the eastern wall of the peristyle below and the western line of the clivus Victoriae at the higher level (see pp. 381-2 and PLATE X). Of the stairs, which doubtless served the same purpose, no traces remain.

Concerning the greater palace built by Caligula on the heights of the Palatine above, the special joy of guides and makers of plans, the ancient writers and the ruins tell us nothing. Caligula lived, according to the ancient historians, as did the later emperors, in the composite structure known in common parlance as the "Palatium,"

[1] Hülsen, *Top.* 97. Lanciani, *op. cit.* 185.

the growth already of many decades. In this great building, the work wholly of other builders, but especially in that part of it more closely connected with his immediate family, the houses of Tiberius and Germanicus, lay the emperor's own apartments and the imperial baths. Through its long halls he passed from one scene of wild revelry to another, and in one of the narrow, covered passages of this older "Palatium" lurked the assassins at whose hands he met his death. Of the handiwork of Caligula himself, apart from the *cisterna*, the remains are equally silent. In the rear of the upper part of the reservoir, a few broken walls are still left which from their construction must be assigned to the earlier period of Tiberius and Germanicus, while further to the south are the more extensive remains of a large group of structures of the same general period, to which belongs the so-called "house of Livia." In this group of tiny rooms and cramped corridors, now broken and half-buried by the magnificent building on top of them, is still visible a narrow passage leading from the "house of Livia" towards the north and west to the early buildings forming the lower part of the domus Tiberiana, which may easily have been the scene of the final tragedy. In the great central mass forming the upper half of the same house of Tiberius lies a splendid group of structures now hopelessly buried from sight but which from their construction, as described by eyewitnesses, belong clearly to the earlier part of the period of Nero. This conclusion is rendered doubly certain by the close connection of the group of structures in general plan as well as in type of construction with the great Neronian cryptoporticus to the east—popularly held the scene of Caligula's murder—which with its various ramifications not only bound together the parts of the domus Tiberiana but united it to the no less splendid remains brought to light in comparatively recent years beneath the peristyle and triclinium of the domus Augustana. Concerning the period of these remains, considerable difference in opinion has prevailed. It is clear, however, from their relation to the Neronian palace on top of them with which they are identical in type of construction, that the building represented by these remains must be accepted as the work also of Nero, but of the period previous to the fire of 64 A.D.[1] Above and resting upon these monuments of many periods and of various builders still rise the remains of the great structures of Domitian, strengthened and beautified by the later work of the architect-emperor, Hadrian. In this confused tangle of broken structures, of which the old-time "Palatium" now consists, but one monument can be attributed to Caligula, the great building now under discussion, by which he extended the palace to the Forum.

[1] The work of Nero on the Palatine, which was very extensive, both before and after the great fire, will be discussed fully at a later time.

After the completion of his four years of reckless building schemes —not unlike that other four years of Nero's reign, after the great fire—with the passing of the mad emperor himself from the stage of action, his great monuments, hateful to the people, were finished by his successors and bore their names or were wholly destroyed. The building at the northwestern corner of the Palatine did not entirely escape. The emperor Claudius, mindful of the people's favor, restored their desecrated shrine to the "Twin Brethren"[1] and, it is probable, though it was not destroyed, wrought many changes in the peristyle itself—among which may well be included the restoration of the large basin. To the great monument the fire of Nero was less kind. With the larger part of the older buildings immediately adjoining it on the heights above, the lofty new palace of Nero was at that time seemingly burned to the ground.

On top of the peristyle below rose, a half century later, the huge pile commonly known as the "temple of Augustus," which was given back to us in all its imposing height in the excavations of 1900–01. The massive structure, as built by Domitian, like his more famous reception-hall on the Palatine, consisted of a solid rectangular building of brick-faced concrete, forming a single structural unit, as is shown very clearly by the unbroken lines of broad bonding-courses of *bipedales* throughout the whole monument. It was divided into two parts, the great hall on the west, and the two smaller halls behind it towards the Palatine. The original purpose of the building has not been as yet determined. It is, however, clear that it was not a temple, whether we hold with the older and more simple view that it was a great library, possibly that belonging to the domus Tiberiana, or with the newer suggestion of Delbrück[2] that it was an imperial reception hall.

In connection with the erection of the new monument at the lower level, the great reservoir, which had escaped the fiery wave of destruction which had engulfed the peristyle, suffered greatly. With one whole end and possibly the upper part of the third story cut off, in Procrustean fashion, by the hand of the imperial builder, it was buried deep behind and below the magnificent new buildings of Domitian. On the north towards the Nova Via, he erected the lofty series of rooms for the imperial guards (PLATE XI and Fig. 6) with their hanging portico in front of them adorned with wonderful frescos, while above rose the splendid structure of the new domus Tiberiana.

To relieve the bare, blank height of the great pile below and to support its towering walls, Hadrian enclosed it, a few years later, on the north and west by a stately portico, resembling, in general plan and design, that by which he surrounded the great public palace of

[1] Cass. Dio. LX, 6.
[2] *Op. cit.* pp. 21–23.

Domitian in the center of the Palatine.[1] That this work is not of the original building is shown not only by its construction but by the cutting back of part of the wall towards the north to afford proper support for the new vault, as well as by the reduction in the size of the door to correspond to its height. At the same time the lofty guard rooms on the slope above vanished, in their turn, behind even more lofty vaults and arches (PLATE XI) which united the palace above to the new atrium Vestae below, which is of the same period.[2] As a link to unite these two great structures, Hadrian also built the majestic ramp by which one still ascends to the Palatine. That in this monumental structure we must recognize the work of Hadrian and not of the original builder of the adjoining structure, is clear from:

(1) Its structural independence (PLATE X).
(2) The diminution in thickness of the southern half of the back wall of the adjoining building to allow space for the new ramp.
(3) The structural and architectural unity of the ramp with the walls above, which are recognized as Hadrianic.
(4) The type of construction, which, though running close to that of Domitian in its use of triangular brick-facing, is yet clearly distinct.

"He (Caligula)[3] built villas and country houses with utter disregard of expense. . . . He built moles out into the deep and stormy sea, tunnelled rocks of hardest flint, built up plains to the height of mountains and razed mountains to the level of the plain."[4] Of all these magnificent monuments by which not merely Rome but the Roman world was filled and on which was squandered the revenues of a realm there are left to us in Rome itself but a few fragmentary walls, and a broken but precious cistern, safely locked away for future ages in its tomb fashioned by the walls of the later imperial palaces.

ESTHER BOISE VAN DEMAN

ROME, July, 1924

[1] The extensive work of Hadrian on the Palatine will be discussed at a later time.
[2] Van Deman, *The Atrium Vestae*, pp. 29–34 and Plan C.
[3] Translation by Rolfe.
[4] Suetonius, *Caligula* XXXVII, 2 and 3.

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RIGHT AND *LEFT* IN ROMAN ART

In the course of his extended investigation into ancient orientation and into the attitudes of various peoples toward the right and left, the late Professor Frothingham[1] lays down the law that the left is the place of honor in Roman art. This is a very surprising conclusion, in view of the enormous Greek influence in Roman art, and the undisputed fact that among the Greeks the right was the post of honor. If the law were universal or nearly so, as would be inferred from Frothingham's article, it would sometimes be useful for the identification of figures within a group, and hence for the settlement of iconographic problems. It is desirable to see whether the material is such as to justify a general law.

In the first place Frothingham cites the Capitoline Triad—Jupiter, Juno, and Minerva—and shows that Minerva stands on the right, Juno on the left, of Jupiter. There are exceptions: in a relief in the Museo Nazionale in Rome[2] Juno is on the right of her spouse; but the general correctness of the rule is certain. It may be noted not only in representations of the Triad as such, but in all (or nearly all) cases in which the three deities appear. These other instances, however, may be explained as influenced by the arrangement of the Triad proper, in the most sacred temple of the empire; and their establishment there goes back to the early days of the city. Frothingham had previously shown[3] that the left was the place of honor in Etruria and primitive Rome. The original arrangement was later retained; but its continued existence is poor evidence for the place usually considered honorable in the imperial period.

Considering next a number of historical reliefs, Frothingham notes that when the emperor appears, escorted by the prefect, the prefect stands at the emperor's left. There are numerous cases not mentioned by him, but apparently no clear exceptions to the rule. It is obvious that the prefect was represented in the position which he actually occupied in the performance of his duties, quite regardless of the artist's notion as to the place of honor; and in determining the place to be occupied by an attendant upon the highest officer of the state, ancient practice would probably continue. Ceremonial usages are generally slow to change.

There are a number of instances in which the artist was apparently

[1] *A.J.A.* XXI, 1917, pp. 313–336.
[2] Room XIV; Paribeni, *Le Terme di Diocleziano e il Museo Nazionale Romano*[4], p. 230, no. 612.
[3] *A.J.A.* XXI, 1917, 187–201.

free to arrange the figures as he wished. Thus Frothingham notes examples where Augustus is at the left of Roma, Livia at the left of Tiberius, Faustina at the left of Antoninus, Julia Domna at the left of Septimius Severus. To all this may be added that, on Roman sarcophagi and other sepulchral monuments, when a husband and wife are portrayed together, the lady is usually at her spouse's left. On the other hand: in a relief in Ravenna[1] we find Livia on the right of Augustus; in a cameo in Vienna[2] Augustus is at the right of Roma; and in sepulchral monuments[3] there are many instances in which the woman is at the man's right.

It appears then that the commoner practice in classical Rome was to place the subordinate figure at the principal figure's left; but exceptions are somewhat numerous. It seems doubtful also whether in all cases that follow the rule the left is distinctly a place of honor; it may have been simply a place for the less important of two figures. The post of honor is better seen in groups of three.

In the historical reliefs it occasionally occurs that the emperor, attended as usual by the prefect on his left, is also escorted or approached by another man, who naturally appears on his right. In these cases the grouping is determined by the fixed position of the prefect. Except for such examples and the Capitoline Triad, Frothingham cites no cases in which there are subordinate figures on both sides of the principal figure.

In the museum at Algiers there is a relief with three figures[4]. The central one is Mars; on his right is a female figure, obviously some goddess and presumably Venus; on his left is a mortal. Doublet indeed expresses doubt as to whether it is a mortal or a god; but the short hair, absence of divine attributes, and general appearance leave no doubt on that point. On the label in the museum it is suggested that the relief reproduces the Mars, Venus, and Julius Caesar in the temple of Mars Ultor in Rome. Whether this is the case or not, the place of honor certainly belongs to the goddess: in this instance the place of honor is the right.

In the "Salle d'honneur du 4e tirailleurs" in the *kasba* at Susa in Tunis[5] there is a stucco relief representing a young man's choice of life. He stands between two female figures, one armored and the other wearing ordinary costume and carrying a book-roll. He grasps the hand of the warrior maiden and turns toward her; the civilian girl touches his arm appealingly but gets no attention. This is an

[1] Reinach, *Repértoire de Reliefs*, III, p. 128, 1.
[2] Reinach, *op. cit.* II, p. 145, 1.
[3] Reinach, *op. cit.* II, 231, 2; Hekler, *Greek and Roman Portraits*, 133, 162; Altmann, *Römische Grabaltäre*, p. 206, fig. 163, p. 214, fig. 173; Amelung, *Sculpt. d. Vat. Mus.* I, pl. 69, no. 500.
[4] Doublet, *Musée d'Alger*, p. 84, no. 5, pl. XI.
[5] Gauckler, Gouvet, Hannezo, *Musées de Sousse*, p. 8, no. 11, pl. IV.

example where, if anywhere, the place of honor ought to be determinable; and the armored figure is on his right.

For the distinction of rank between right and left, these are the two clearest cases known to me. Both may be accepted as representing Roman usage. Greek influence would be less strong in northern Africa than in Italy, and it is unlikely that a Carthaginian custom of this nature would survive in Roman colonies. Furthermore, the presumption is that the Carthaginians followed "the universal oriental and Semitic custom of the lucky left"[1]. As regards Rome the situation is clear: the left, being the place of honor in the earliest period, was not entirely superseded in imperial times; but the Greek practice was certainly known, and probably was equally common.

Frothingham suggests that the mediaeval Roman custom of representing St. Peter at Christ's left, St. Paul at his right, is due to a continuation of old Roman tradition. It seems improbable that such a convention should be founded on the unstable and uncertain practice of the imperial period. The improbability is considerably increased by the relative position of husband and wife on early Christian sarcophagi. On five sarcophagi in the Christian museum of the Lateran[2] and one on the stairway of the Palazzo dei Conservatori such groups appear, and in every case the wife is placed at her husband's right. I have not seen any Christian sarcophagus in the museums of Rome in which the contrary arrangement occurs. This would suggest that the honorable right had finally won the day; just when the custom of placing Peter on the left of Christ must have been forming.

Perhaps it is not necessary to find for this custom an adequate explanation. When once Paul had been placed on the right in some important monument in Rome, the example might have been followed generally. The man who dictated the arrangement in that instance might have been influenced by some entirely individual idea, which we cannot be expected to divine. It is conceivable that he was harking back to primitive Roman usage, or consciously imitating the Capitoline Triad; though neither seems probable *a priori*. At all events the custom did not arise from a consistent and continued Roman tradition: for there was none.

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[1] Frothingham, *A.J.A* XXI, 1917, p. 61.
[2] Nos. 66, 104, 175, 178, 184.

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ERECHTHEUM PAPERS

III

The Post-Persian Revision

In 480 B.C. Mardonius captured Athens, and "every part of the citadel" [1] was given to the flames. Just what there was to burn is unknown. The Parthenon had been commenced, the peristyle was partly up, and the whole structure was sheathed with scaffolding. The Hecatompedon, enriched not so very long before by the marble columns and gable sculptures of the Pisistratids, and with all its gay decorations still bright and fresh, lay to the north, facing on an open square. Between these two monuments the central area of the citadel was probably quite open, but venerable clay-roofed structures very likely flanked the north side of the court in front of the Hecatompedon; and in general all the ancient *polis* within the circuit of the thick Pelasgian walls must have been well filled with lesser public structures and with houses dating from the time when this small precinct formed the whole of the city of Athens. Somewhere here, were fortifications built of wood. A little band of desperate souls had trusted these to be the "wooden walls" which Delphi had predicted "safe" and behind them had defied the armies of the Persian king.[2] Perhaps these "wooden walls" were a true stockade, though from the scarcity of heavy timber in the district this seems improbable. More likely they formed a "half-timber" superstructure of brick and wood upon the outer circuit walls of stone, or on some inner terrace walls. At any rate, there must have been enough inflammable material about to make a pretty blaze, and give the Persians some slight satisfaction for the fact that most of the Athenians had eluded them and were safe on Salamis.

Just as we are uncertain what there was on the Acropolis before the fire, so likewise we cannot say how much was left when the fire had died down. All roofs had surely gone, and the blaze of fallen timbers must have calcined the surface of all the lower parts of dressed stone walls, particularly on the inside of the buildings. Herodotus says that some forty years after this he could still see walls there blackened by the Median flames,[3] but these, perhaps, were only the retaining walls of terraces, rough in any case, and thick enough to stand a scorching with impunity. The smaller structures must have

[1] Herodotus, VIII, 53.
[2] *Ibid.* VIII, 51–52. Herodotus says that the entrance to the Acropolis was barricaded with "Θύρησί τε καὶ ξύλοισι." These were probably roof beams and doors taken from houses on the Acropolis. It is possible that the "wooden walls" were only wooden to this extent.
[3] *Ibid.*, V, 77.

been an almost total loss. The column drums of the Parthenon then in place were so calcined as to be useless except for foundation blocks, or where by trimming off the damaged surfaces they might serve for smaller shafts. The peristyle of the Hecatompedon apparently did not fall, for many unbroken cornice blocks were later built into the north wall of the citadel. These blocks seem also free from damage by fire, and this is natural enough since they would not have been exposed to the direct flames of the burning roof and ceiling of the peristyle even when the woodwork there had fallen. But the column drums were seriously calcined, as they show today, where they lie in the foundations of the north wall. So, although the Persians did not overthrow the peristyle, the Athenians must, themselves, have soon dismantled it for safety's sake.

What was there left of the cella of the Hecatompedon? In cella walls there are few architectural members which can be identified if found re-used in later work, so there is nothing to prove, as do the re-used members of the peristyle and the column drums of the older Parthenon, that the cella of the Hecatompedon did not survive the renovation of the Acropolis. But it is difficult to see how the walls could have escaped being badly calcined, especially on the inner side, where the flames from the fallen timbers of the ceiling and roof must have blazed and glowed close to the soft poros blocks. From general probability one would conclude that when the victors returned from Salamis, nothing was left on the Acropolis but blackened stumps of ruined walls.

Probably what work was done to make these safe for habitation, in the anxious year before Mardonius again swept into Attica, consisted as much in tearing down as it did in building up again. And when a second time Mardonius was forced to leave, "he resolved"—says Herodotus—" to burn Athens, and to cast down and level with the ground whatever remained standing of the walls, temples, and other buildings." [1] How could Herodotus have judged of what Mardonius had intended save by what he knew Mardonius to have done? The cyclopean circuit walls were surely this time largely overthrown, for apparently nothing of them was standing in the late fifth century except the massive section south of the Propylaea. It is hard to believe that, when the Athenians at last were permanently reëstablished in their homes and set to work to reconstruct their shrines and citadel, any walls were standing there that could be used, save only terrace walls and foundations underground.

On the other hand, there are many post-Persian references to an "ἀρχαῖος νεώς." This is identified by Doerpfeld [2] and some others as the cella building of the Hecatompedon. He claims that this

[1] Herodotus, IX, 13.

[2] Doerpfeld's theory of the survival of the Hecatompedon as the "Old Athena Temple" is expounded by him in *Ath. Mitt.* XII, pp. 25 ff., pp. 190 ff.; XV, pp.

"ancient shrine" was not destroyed, but was repaired and stood to the end of classic times. There are also references to an "ὀπισθόδομος" identified by Doerpfeld with the western half of the Hecatompedon. J. W. White [1] advances the theory that the eastern cella was pulled down, but that the "opisthodomos" was restored to serve as a treasury. Neither identification, however, is wholly sure, for many hold that the "ancient shrine" referred to was part of the Erechtheum, and that the "opisthodomos" was the western vestibule or the whole rear section of the Parthenon. The only post-Persian passage that, to my mind, refers with much certainty to the Hecatompedon, is that where Herodotus speaks of "walls blackened by the fires of the Medes, which are over against (or near?) the Megaron that faces to the west." [2] So far as I know, nobody has identified this Mergaron otherwise than as the west cella of the Hecatompedon. But, unfortunately, this mention is unique; there is no other later reference to such a building, at least by that name. I think, therefore, that perhaps, when Herodotus wrote,—some forty years after the fire,—the ruined walls of a part of the Hecatompedon may have been still standing, scorched and crumbling, which shortly after were pulled down and cleared away.[3]

But while the wrath of the Persian king left desolation on the Acropolis, he could not eradicate the sacred sites. The holy olive tree of Athena, so they say, miraculously survived the flames, scorched but not killed; [4] Poseidon's well may have been somewhat dried, but certainly was not destroyed, nor was the mark of the trident that created it erased. The ancient altars may have been overthrown, but to the gods each holy spot was still redolent with centuries of burning flesh and bone. Like cats, the gods sought out their own wrecked *temene* and desolated hearths. So, when the diplomacy of Themistocles and the frantic energy of the citizens

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420 ff.; XXII, pp. 159 ff. Although Professor Doerpfeld's arguments are in themselves intensely interesting, and the discussion deals with matters closely allied to the subjects of these papers, yet I do not feel that they vitally affect the latter. For Professor Doerpfeld's arguments are based almost wholly on literary evidence, while mine, so far at least, have been based almost wholly on material evidence. The whole subject can readily be reviewed by reference to Frazer, "*Pausanias's Description of Greece*," Vol. II, Appendix, reprinted with slight changes from *J.H.S.* XIII, 1893, pp. 153 ff., or to D'Ooge, *The Acropolis of Athens*, Appendix III.

[1] The Opisthodomos on the Acropolis at Athens, *Harvard Studies*, VI.

[2] Herodotus, V, 77.

[3] There is an inscription (*C.I.A.* I, No. 1, supplemented by *C.I.A.* IV, pp. 3 ff.; Dittenberger, *Syllog. Inscr. Graec.* No. 384) assigned by Kirchhoff and Dittenberger to the first half of the fifth century, which mentions treasures kept "in the *peribolos* south (?) of the old temple of Athena on the Acropolis." "South" is largely restoration, but seems probable. If the "old temple" were on the site of the Erechtheum, then the "enclosure" south of it might very well have been formed by the roofless walls of part of the Hecatompedon, used as a temporary treasury until some more adequate structure should have been built and the unsightly ruin could be removed.

[4] Herodotus, VIII, 55.

had rebuilt the city walls, to assure them from their Spartan allies, Athens turned its attention to the Acropolis with all dispatch, to make the ancient supernatural guardians at home once more, and dress their shrines with even greater glory than before.

Thanks to the thoroughness of the Persian destruction, it was possible to plan the reconstruction on lines more unified and simple than those which had been laid down before, by centuries of slow development. The new circuit wall was built in long straight stretches. The great smooth side of it along the south was the admiration of all Greece. On the north the contours of the rock demanded a more irregular line, but even so, the curves of the old Pelasgian wall were simplified and new areas were enclosed in the Acropolis.

The southern wall is known to be the work of Cimon;[1] the north wall is often attributed to Themistocles, because the use in its foundations of damaged members of the earlier Parthenon and the Hecatompedon seems to agree with the statement of Thucydides[2] that "the base of the fortifications built by Themistocles consists of all sorts of stones,—and many columns from grave monuments and stones wrought for other purposes were built in." But there are marked differences between the wall on the Acropolis and that by the Dipylon gate, which is quite certainly the work of Themistocles; for the latter is built of mixed materials throughout, while in the former re-used stones are limited to those parts below ground,—as seen from the inside,—and to the stretch where the demounted entablature of the Hecatompedon was carefully set up as an enduring token of the barbarous destruction of the Medes. Apparently the rest of the wall was all of fresh-cut poros blocks, neatly drafted along the lower edge on the inner face, and laid with as proper accuracy as the best of poros work can show. The common distinction in period between the north and south walls seems to me, therefore, exaggerated; and as the evidence at present stands, I should credit the Cimonian régime with the general clearing away of the ruins on the Acropolis, and laying out anew, and making fresh again, the ancient *temene* and their sacred shrines.

The most renowned and venerable spots, and those consequently of the first importance, were where the gods, contending for the lordship of the town, had left their marks of prowess, and where the ancient shrine of Athena Polias had stood, housing the heaven-sent ancient wooden *agalma*. The reconstruction of these parts should be the first to be commenced, and possibly work was started

[1] Plutarch (*Cimon*, XIII) says that it was built with the spoils from the battle of the Eurymedon (468 B.C.). Pausanias (I, 28, 3) says, "The whole of the wall which runs round the Acropolis, except the part built by Cimon, son of Miltiades, is said to have been erected by the Pelasgians." In his time, apparently, no part of it was attributed to Themistocles.

[2] Thucydides, I, 93.

here even before the new walls of the Acropolis were built. At any rate, the stretch of wall flanking the "strong house of Erechtheus" on the north seems to be the earliest section of the circuit. For the burned column drums from the older Parthenon are collected here.[1] It is reasonable to use up old materials in foundations first, beginning with the best of these materials, before employing new stone; any other order is unnatural. Where the marble column drum foundations lie the new wall seems to follow very closely the line of the old Cyclopean fortifications, but beyond the easternmost drum the new walls run on east and then southeast, instead of south and then east along the older line.[2] Thus a new corner was included in the Acropolis. And at the west of the column drums the new wall turns sharply northwest and then runs west, while the older wall presumably continued simply west and then turned north. So here, too, the extent of the Acropolis was enlarged. It seems to me quite possible that when the "theatral area" north of the Erechtheum was rebuilt, the stretch of outer wall that bordered it was simultaneously begun,—using the damaged column drums,—and leaving for the moment the old Cyclopean walls at east and west.

But in spite of eagerness for the restoration of the sanctuaries, the work was not begun without due consideration of the plan. An attempt was evidently made, by shifting slightly boundaries here and there, to bring the group of diverse elements into one harmonious scheme. We have seen that the lines of prehistoric masonry in and near the Erechtheum are slightly divergent from one another and from the lines of the classic building,[3] but that the latter agrees exactly with the lines of the cut stone-work of the pre-Erechtheum.[4] This indicates that when the destruction caused by the Persians necessitated a general rebuilding of the Acropolis, a clean sweep was made of the old heterogeneous constructions and a revised plan adopted, which while preserving all the sacred areas, each in its original location and with approximately its original extent, yet by changing their axes slightly, brought them all into one uniform system; and the lines laid down at this time were those followed less than fifty years later by the classic marble structure.

But what was it that determined the new post-Persian axes? Why were those of the Hecatompedon, which so nearly agreed with those of the prehistoric terrace walls, not followed? If the pre-Persian arrangements, as we have seen reason to restore them in the preceding paper, are correct, the reason is not far to seek. To the

[1] Here also are steps of Kara stone and of marble from the Parthenon destroyed by the Persians (Hill, *A.J.A.* XVI, 1912, pp. 535 ff).
[2] *Erechtheum Papers II*, *A.J.A.* XXVIII, pl. VII.
[3] *Erechtheum Papers II*, *A.J.A.* XXVIII, fig. 12, p. 156.
[4] *Erechtheum Papers* I, *A.J.A.* XXVIII, p. 21.

north of the Hecatompedon, apparently, lay a "theatral area" bounded on the north, east and south by terraces, (the southern one corresponding roughly to the *temenos* within the east cella of the classic Erechtheum). But since this arrangement had developed from successive periods of building, the surrounding terraces were neither strictly parallel nor mutually at right angles, and the

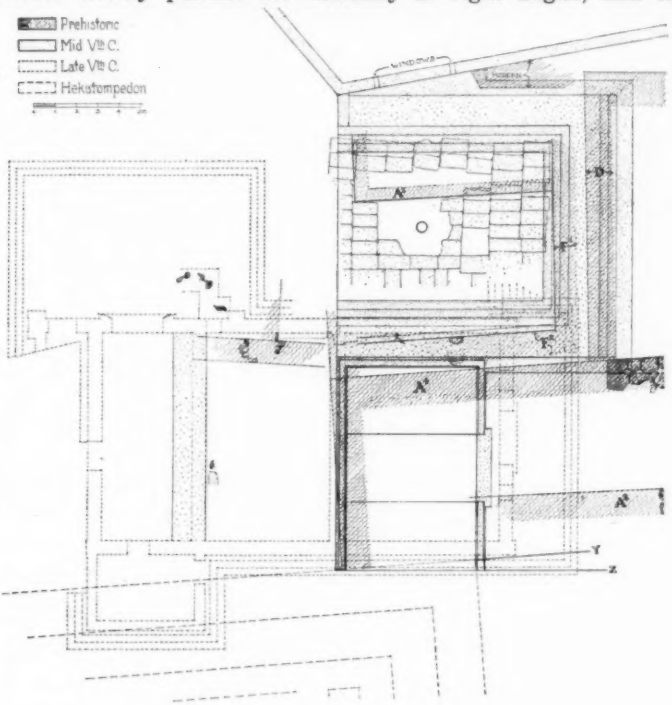

FIGURE 1. SUPERPOSED PLANS OF PRE-ERECHTHEUM CONSTRUCTIONS

southern terrace (F^2) was appreciably longer than that to the north (A^5) (Fig. 1). In the post-Persian revision the trace of the north terrace is clearly marked against the new Cimonian wall.[1] Where the west end of the terrace came, there is an anathyrosis on one of the wall blocks for the abutment of the terrace wall running north and south at the west end of the terrace. This western limit coincides with the point where the circuit wall turns sharply north at the end of the section built on the re-used column drums. We may assume this point to have been determined by the western limit of the pre-Persian "theatral area," or rather by the prehistoric terrace to the

[1] Middleton, *Plans and Drawings of Athenian Buildings*, *J.H.S. Suppl.* III (1900).

north of that area (A^5, Fig. 1). The fifth century architect seems to have decided that a line drawn southward from this point should form a continuous western limit for both the new "theatral area" and the terraced *temenos* lying to the south of it, where the east cella of the Erechtheum was later to come. But since, in the old arrangement, this south terrace ran farther west than the northern one, it was necessary to abandon the pre-Persian system of orientation, and run the new western boundary to a point slightly west of the southwest limit of the old terrace, so that the little area clipped from the northwest corner would be compensated for at the southwest. If the older system of lines had been used the terrace would have been reduced a metre and a half. Since it was necessary to do over the whole "theatral area," the other boundaries could easily be shifted by the slight amount needed to conform to the new orientation. And if the orientation of the Hecatompedon was quite disregarded, this may have been because there was no intention of preserving such remains of that building as may have been still standing.

The new eastern boundary of the *temenos* on the south terrace would naturally be parallel to the new western boundary, and we have seen from the cuttings in the foundations of the east wall of the classic Erechtheum that the east boundary lay just within and was exactly parallel to the Erechtheum wall. Therefore we can be reasonably sure that the new western boundary, and in fact all the lines of the revised plan of the "theatral area," were parallel with those of the Erechtheum. Now if the new western boundary be drawn from the sharp angle of the circuit walls southward and parallel to the lines of the Erechtheum, it will be found to fall just in the centre of the east cross wall of that building. Thus, both to the east and to the west, the Cimonian *temenos* on the south terrace agreed with the classic east cella, which merely sheathed the earlier area (Fig. 1).[1]

Of course such a revision required that the west end wall of the prehistoric southern terrace should be torn away, or at least its western face removed, and a new wall be built to the new line on the old foundations. This new wall we may safely assume to have been of poros. And in order that the "theatral area" should lie foursquare with the new west line, it would be necessary to build a new wall for the northern face of the south terrace.

[1] At first sight it would appear that the face of the Cimonian wall should have corresponded with either the east or the west face of the later cross wall, and it is possible that such was actually the case, since a slight variation in what was rather a difficult series of measurements might have shifted my line to the extent of 35 cm. But as Cavvadias's plan (*loc. cit.*) agrees with my own measurements, I believe that the face of the Cimonian wall actually came at the centre of the later wall. In the succeeding paper I shall offer a reason why this should have been the case.

We have seen that from prehistoric times a narrow terrace walk overlooking the "theatral area" ran along the north flank of this south terrace,[1] and we have also seen that at some period this terrace walk was apparently paved with poros.[2] It is reasonable to assume that this poros pavement dates from the Cimonian rebuilding, and as the pavement lay partly, at least, within the Erechtheum, it follows that the Cimonian south terrace must have been somewhat south of the north wall of the Erechtheum. At the same time, it must have been outside, *i.e.* north, of the prehistoric south terrace wall (A^4, Fig. 1). Now it was pointed out in the first paper of this series, that the foundations of the east wall of the classic Erechtheum were laid in an irregular manner. Instead of being begun at one corner and continued across to the other, courses 5 and 6—counting from above—were begun at a point 1.12 m. south of the inner face of the north wall and continued from there toward the south. The gap to the north was filled in when the north wall was laid.[3] If we consider that the face of the Cimonian terrace wall came at this point, it is easy to understand why the later foundations should have been laid as they were. For southward from here the old wall would have to be cut through and the terrace trenched to lay the five lower courses of the new foundations, while to the north the new work could be laid in the open, along with the north wall of the Erechtheum.

Assuming, then, the Cimonian poros terrace wall to have lain parallel to, and 1.12 m. inside the inner face of the north wall of the Erechtheum, we find that at its western end the prehistoric wall of Acropolis limestone (F^2, Fig. 1)[4] which carried the walk at the foot of the old south terrace (A^4) would serve for its foundations. Farther east the new wall would come above the narrow space, less than half a metre wide, between F^2 and A^4, which could easily be filled with rubble to give support. At the eastern end the face of the old wall would have to be somewhat pulled away to make room for the newer work, unless the latter were a mere veneer. For at the point where the old east terrace (D) meets the old south terrace the north face of the new wall would lie only 20 cm. to the north of the latter.

Now, though there is nothing to indicate that the ancient south terrace, between the "theatral area" and the royal Megaron or later Hecatompedon, served as a sacred *temenos* in Mycenaean or pre-Persian times, it is evident that it did so in the post-Persian revision, for the cuttings on the inside of the south foundations of the Erechtheum show that it was enclosed on the east, with a long

[1] *Erechtheum Papers* II, *A.J.A.* XXVIII, p. 158.
[2] *Erechtheum Papers* I, *A.J.A.* XXVIII, pp. 11–12.
[3] *Erechtheum Papers* I, *A.J.A.* XXVIII, pp. 17–18 and pl. I, C.
[4] *Erechtheum Papers* II, *A.J.A.* XXVIII, fig. 12, p. 156.

sill or step giving access to it from that side. Undoubtedly it bore the same dedication and served much the same purpose as the east cella of the Erechtheum which replaced it, and it is altogether probable that the special sanctity of the area long antedated the Persian destruction.

On the east and west the boundaries of the *temenos* lie just within those of the east cella; on the north the outer face of the boundary wall would be from 1.10 m. to 1.20 m. south of the inner face of the Erechtheum wall. Where did the southern boundary lie? The old Mycenaean terrace wall (A^2) must have been abandoned, for the new entrance sill ran south of that line, but some other terrace wall must have been built in its place to effect the transition between the level in front of the Hecatompedon and that in front of the "east cella" *temenos*, about a metre and a half below. Cavvadias[1] shows no trace of any such wall, though possibly a reëxcavation of the region might give some indication of its position. There is no way of knowing whether it was built before or after the Persian destruction, though the latter seems to me the more probable. If it were pre-Persian it would probably have been parallel to the lines of the Hecatompedon and almost parallel to A^2 (as at Y, Fig. 1), but if it were post-Persian its line would probably be parallel to those of the new *temenos* and "theatral area,"—and, of course, the subsequent Erechtheum. In any case, it seems unlikely that the *Kara* stone foundations of the peristyle of the Hecatompedon would be left unchanged, to flank the south side of the "east cella" *temenos* on a line bias to the other three sides. More probably it would be built out with poros to a line, on the new system, running west from the northwest angle of the peristyle foundations, or else, since the perisytle itself was unquestionably removed after the fire, it may be that the foundations were dressed back to a line at right angles to the west wall of the *temenos*, drawn from the point where that wall met the peristyle, and that the new terrace wall continued the same line out to the east (as at Z, Fig. 1). This second arrangement would bring the southern limit of the *temenos* about 3.10 m. south of the south end of the entrance sill. (A variation of ten centimetres or so from this figure is quite possible, since the point of intersection of the hidden foundations of the Hecatompedon with the non-existent west wall of the *temenos* is difficult to locate exactly.) If the sill ran as far north as the point marked m^3, as seems most likely, its northern end would lie about 3.42 m. to the south of the presumed line of the outer face of the terrace wall bounding the *temenos* on the north.[2] Upon this wall there must have been a parapet; if the inner face of the parapet came 0.32 m. south of the

[1] Cavvadias und Kawerau, *Ausgrabung der Akropolis*, pl, Γ.
[2] *Erechtheum Papers* I, *A.J.A.* XXVIII pl. I, C.

outer face of the supporting terrace wall, the sill would then be exactly centred on the interior of the *temenos*. A symmetrical arrangement of this sort is inherently probable, since the Cimonian rebuilding started with a practically clear field and apparently endeavored to lay out the ancient sanctuaries in a coördinated monumental scheme. The interior width of the *temenos* so planned is 9.90 m., just 5 cm. more than the interior width of its successor, the east cella of the Erechtheum: the depth from east to west would be 6.30 m. as opposed to 7.30 m. in the later building. The prehistoric terrace was about 6.10 m. from north to south, including the width of the parapet, and if the east boundary continued the front line of the Hecatompedon, it was 6.30 m. from east to west, including parapets at both ends. Each alteration increased the area of the sanctuary very slightly.

The parapets on the north and west sides of the Cimonian *temenos* would naturally be similar to that along the east side, and the cuttings in the foundations of the southeast corner of the Erechtheum give us some idea as to its nature there.[1] Apparently it consisted of slabs, probably of marble, set on edge; the total distance from the outer face of the supporting wall to the inner face of the upright slabs being somewhat less than 0.323 m. (Fig. 2). This agrees admirably with the hypothetical thickness assumed for the parapet along the north side of the *temenos*. The top of the slabs was very likely level with the stylobate of the Hecatompedon; the bottom rested on a course flush with the entrance sill, or more probably on a base 0.295 m. thick set upon that course. The top of the base would be at the level of the top of the orthostates of the later Erechtheum.

The ground level to the east of the *temenos* must have been at least a few centimetres below the top of the entrance sill: or if this were a step instead of a flush sill, the grade would come at the top of a euthynteria about 30 cm. below. The level of the terrace to the north of the "theatral area," as marked against the inside of the Acropolis wall, lay at exactly the level of the top of the orthostates of the north wall of the Erechtheum. We should expect the levels of the two terraces flanking the "theatral area" to be the same, for while that of the *temenos* to the south might have been predetermined by some special factor, there is no apparent reason why that to the north could not have been made to match it. If we assume, then, the level within the *temenos* to have been one step higher than the top of the sill, the arrangement at the entrance would have been somewhat as shown in A or C (Fig. 3). The depth of the cutting in the foundations of the Erechtheum is suitable for a step (30 cm., see Fig. 2), which would naturally be about

[1] *Erechtheum Papers* I, *A.J.A.* XXVIII, pp. 21–22.

as high as it was wide; but if the grade to the east came 30 cm. below the top of the cutting, the foundation course or euthynteria, which projected as far as the face of the step, would have been

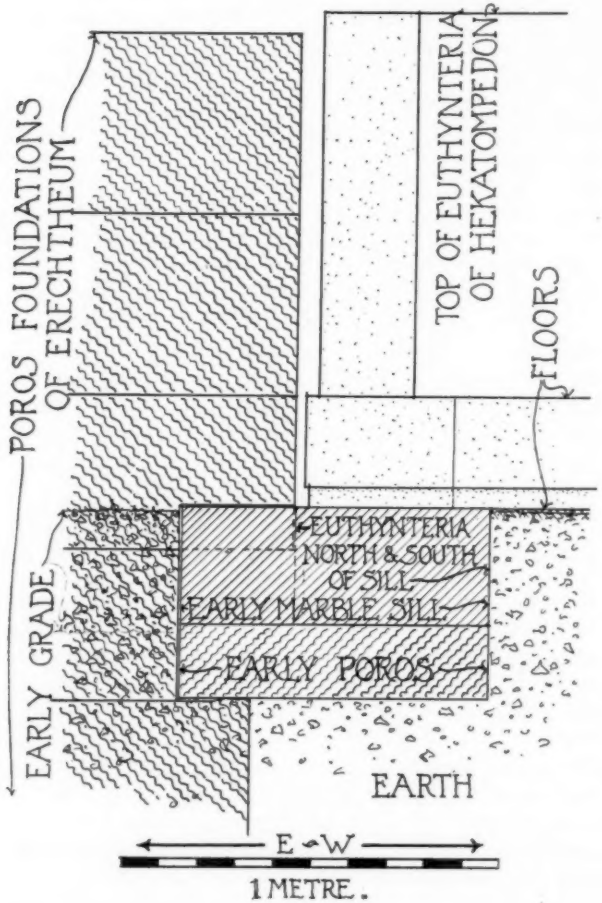

FIGURE 2. SECTION THROUGH ENTRANCE TO "EAST CELLA" TEMENOS SHOWING RELATION OF EARLIER CONSTRUCTION TO FOUNDATION OF EAST WALL OF ERECHTHEUM (*cf. Erechtheum Papers I, Pl. I, D*)

exposed all across the front of the *temenos* (A, Fig. 3). On the other hand, the arrangement shown in C (Fig. 3) is anomalous and improbable; for while a sill flush with the grade level at both sides is normal enough—there is such a one in the Cimonian remains in

the Pandroseum, to be considered in a subsequent paper—there is no object in a flush sill projecting from beneath a step.

It is also possible that the *temenos* was not of a uniform level, but was flush with the sill or step in the centre and a step higher at the north and south sides; and the likelihood of such an arrangement is supported by the probable existence of a similar arrangement in the east cella of the Erechtheum which succeeded it. In

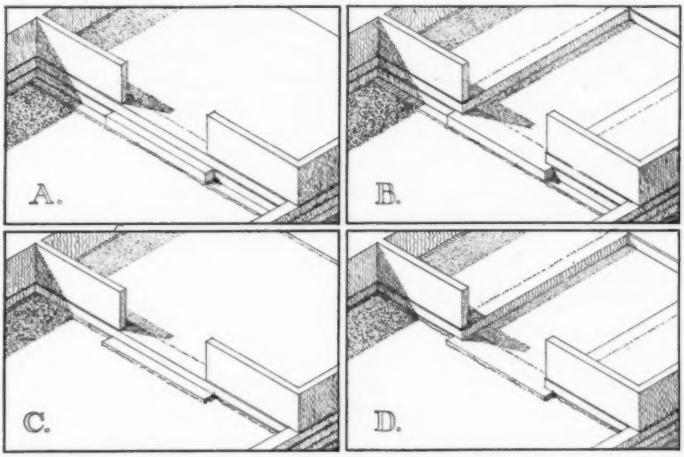

FIGURE 3. POSSIBLE ARRANGEMENTS OF "EAST CELLA" TEMENOS

the southeast corner of the classic building there projects inward a broken piece of the marble course which outside forms the lower torus and scotia of the moulded base around the building.[1] This indicates that here, at least, the floor level was at the top of this course. But we should naturally expect this to be also the level of the top of the sill of the door from the east porch, for it marks the line of division between base and orthostate, and is the level of the sill leading into the Porch of the Maidens. In classic doorways of the fifth century it was the rule for the floor within a doorway to be at the same level as that of the porch without. This is the case with the Parthenon and with the north door to the Erechtheum as originally planned, though in the latter case the inner floor actually came 0.105 m. higher than at first intended, reducing the height of the sill on the inside to 0.317 m. In the Porch of the Maidens the sill is the full height of the base course above the floor inside. Stevens, in his restoration of the east doorway,[2] brings the sill still

[1] *Erechtheum Papers* I, *A.J.A.* XXVIII, pl. I, C and D.
[2] *A.J.A.* X, pp. 47 ff.

higher, up to the top of the upper torus above the base course cut on the outer side of the orthostates. This would necessitate cutting away the orthostates to fit over the ends of the sill, and even so would only bring the sill 10 cm. above the floor level indicated in the southeast corner, which Stevens assumes for the whole cella. It seems to me much more probable that the sill came only to the top of the base course, and that the floor in the central part of the east cella was on a level with that of the east porch; the floor along the north and south sides of the cella being raised a low step above it, as in the great cella of the Parthenon. The width of the east door and its trim, as fixed with practical certainty by Stevens's brilliant restoration, is such that the length of the sill would be just one third of the total width of the interior of the east cella. This suggests that the three divisions of the floor were of equal width, with a step at either end of the sill running at right angles to it, and equal to it in height.

If we apply this same triple division to the Cimonian *temenos* on the site of the east cella, we find that it works out surprisingly well. The Cimonian sill was 3.70 m. long; the inside width of the *temenos* was approximately 9.90 m., which divided by three gives 3.30 m. for each section. This would very likely correspond to the width of the entrance to the *temenos*, the parapet overlapping the sill by 0.20 m. at each end. The appearance of the entrance would then have been as in B or D (Fig. 3).

The "theatral area" to the north was paved with slabs of marble when the classic Erechtheum was built. These were set on an under layer of large poros blocks. The marble pavement is now wholly gone, save where a few pieces of it are engaged under the north wall of the Erechtheum and the east steps of the north porch, but the poros layer seems intact, except for two holes near the centre of the area. From one of these some fifteen blocks have been removed; from the other, two blocks are gone. On the east, the poros blocks run clear up to the remains of the Mycenaean wall F[1] (Fig. 1).[1] But the wide flight of marble steps, built with the Erechtheum, which led from the "theatral area" to the upper level at the east, commenced at a point nearly three metres west of the eastern edge of the poros blocks. This proves, I think, beyond doubt, that the marble and poros constructions are not contemporary. For while the poros blocks might possibly have been laid as an exceptionally heavy foundation for the marble pavement, there is no reason at all why the layer should have been extended beneath the marble steps. At the west the poros pavement stops against two cisterns of mediaeval construction. It is possible that one or two more rows of poros blocks were removed when these were built, but it is

[1] *Erechtheum Papers* II, *A.J.A.* XXVIII, pl. VII.

quite as likely that this spot was chosen for them because there was no pavement here. At the north the pavement ends some 2.00 m. to 2.50 m. south of the nearest point in the Acropolis wall. It is of course possible that it once continued all the way to the wall, but as it stops in a definite though very irregular line it is probable that it never extended any farther than at present. The poros blocks vary considerably in shape and size, averaging 0.40 m. to 0.55 m. in depth, 0.60 m. to 0.70 m. in width, and 1.20 m. to 1.40 m. in length. Their surfaces are rough and they are irregularly laid; at one time they must have been covered with a coat of stucco to give a proper finish to the top.[1] The size of the blocks is much greater than is customary or reasonable for a pavement, and the sides and ends are so very rough,—though they have not been greatly exposed to the weather,—the angles so rounded and the shapes so irregular that the suspicion is unavoidable that they originally belonged to some pre-Persian construction and, having been damaged by the fire, were roughly redressed to serve as the basis of a stucco pavement here. Directly beneath them, in places, is a layer of five to ten centimetres of poros chips. These have become so disintegrated by moisture and have so coalesced with the under surface of the blocks above, that it is sometimes impossible to tell just where the division originally came. This under layer is probably the calcined surface which was removed when the blocks were redressed.

If these poros pavement blocks formed part of a wall at the time of the fire, the top and bottom surfaces would probably not have been much damaged, while the outer and inner surfaces might need to be cut away to a considerable extent. In accordance with normal fifth-century proportions for wall blocks, they might have originally been somewhere around 0.60–0.70 m. high, by 0.80–0.90 m. wide, by 1.60–1.80 m. long, though of course the length in an early wall may not have been uniform. To judge from the pre-Persian architectural remains found on the Acropolis,[2] there was only one building large enough to have used *plinthoi* of anything like this size; and that was the Hecatompedon. The narrowest of the rough foundation walls for that building are 1.35 m. wide; the wall sill would naturally have been narrower than this, there may have been a projecting course at the base of the orthostates, and these in turn would project a little beyond the wall above; so that an orthostate course about 0.95 m. thick surmounted by a wall of about 0.85 m. is altogether reasonable.[3] The old triglyphs of the cella wall were 1.82 m. on

[1] *Erechtheum Papers* II, *A.J.A.* XXVIII, figs. 4–7, pp. 148–51.

[2] Wiegand, *Poros Architektur der Akropolis.*

[3] The cella walls of the Heraeum at Olympia, across the orthostates, are 1.18 m. wide, while the foundations are from 1.80 m. to 2.10 m. wide. The orthostates of the temple of Zeus, there, are 1.32 m. wide, and the wall sill beneath them is 1.63 m. (Curtius-Adler, *Olympia*, Vol. I).

centres; this may have been the length of the wall blocks also. It is of course possible that these *plinthoi* never belonged to any building at all, but came from some fortification or terrace wall, but it seems much more probable that up to the period of the Persian wars, everything of the latter sort on the Acropolis was built of Acropolis limestone or Kara stone, rather than of squared poros masonry. And the Hecatompedon was so near to the "theatral area" that it would be very natural to use the debris of the ruined building in this place.

In the pre-Persian arrangement of the "theatral area" a terrace walk, slightly over a metre and a half wide, presumably ran along the southern and eastern sides, at the foot of the main flanking terraces. There is evidence to show that when the Erectheum was being built a similar terrace walk, of poros, lay just within, and by careful underpinning was incorporated in the new construction.[1] This poros terrace would seem to be the Cimonian revision of the pre-Persian one. It lay along the new terrace wall of the "east cella" *temenos* with its northern edge at a line somewhat north of the inner face of the later Erechtheum wall. This gives a minimum width of 1.10 m.: probably it was nearly as wide as the 1.50 m. terrace which preceded it. Its upper surface could not have been much below the level of the classic floor in the west cella of the Erechtheum, since the bottoms of the slabs which formed the terrace floor were in places less than 40 cm. below that level,[2] and poros slabs would hardly have been cut much less than 40 cm. thick. Obviously these were not removed when the classic building was erected, or they would not have been so elaborately underpinned; yet it would certainly seem easier to have done so than to have dressed them down enough (20 cm. or so) to have laid a new floor on top of them. Therefore, I believe that the original level of the terrace walk was the same as that of the classic floor, and that while in the east cella it was buried when the Erechtheum was built, yet its continuation in the west cella actually served as the classic floor, for a strip along the wall at least.

Now if the foundations of the east wall of the Erechtheum be examined,[3] it will be seen that not only do courses 5 and 6 (counting from above) break at the point where the face of the north wall of the "east cella" *temenos* is presumed to have come, but that courses 7 and 8 do not carry through, at a uniform height, for their full length. The bed of course 6 is continuous from end to end, but south of the line of the *temenos* wall, the course is 48 cm. high, while to the north it is only 38 cm.; the top coming to the probable floor level of the terrace walk. Now just below this, at the north end, course 7 is also 38 cm. high, though for all the rest of its length it is 44.7 cm. And the

[1] *Erechtheum Papers* I, *A.J.A.* XXVIII, pp. 7–12.
[2] *Erechtheum Papers* I, *A.J.A.* XXVIII, pl. I, A.
[3] *Erechtheum Papers* I, *A.J.A.* XXVIII, pl. I, C.

total distance from the top of the terrace walk down to the level of the poros pavement of the "theatral area," is 1.543 m., *i. e.* almost exactly four times 38.8 cm. This suggests immediately, that the north face of the terrace walk was built in four courses, each 38–38.8 cm. high, with which the northern end of the east foundation courses of the Erechtheum were aligned.

The southernmost of the poros blocks in the pavement of the "theatral area" are oriented north and south, while all the other blocks

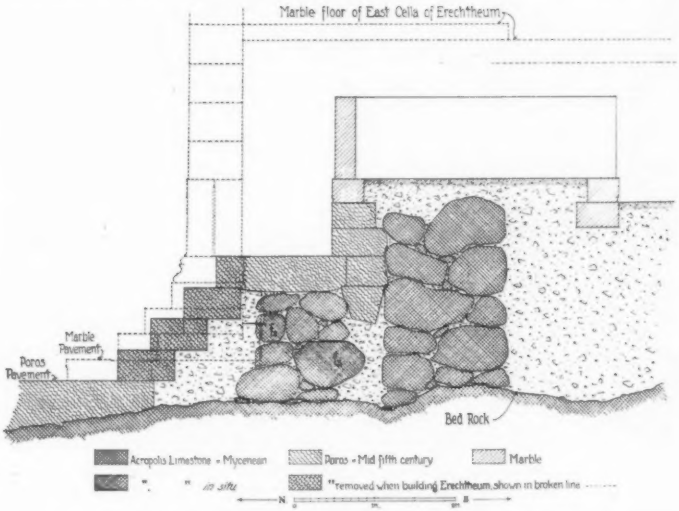

FIGURE 4. SECTION THROUGH NORTH SIDE OF "EAST CELLA" TEMENOS. (*Cf. Erechtheum Papers I, Pl. I, B and C.*)

run east and west. It looks as if the order of laying had been: first the north-south blocks as a row of headers along the southern limit of the area; then a row of headers along the eastern limit,—these of course running east and west,— then successive rows from east to west, the blocks in each row being laid from south to north, starting against the ends of the southern row of headers. If this be correct, the southern boundary of the "theatral area" must have been at the south end of the southern row of poros blocks. Unless these are inordinately long they cannot extend far south of the face of the lowest step of the Erechtheum, and yet they probably extended a little beneath the contemporary Cimonian structure. But if the four courses upholding the terrace walk formed a vertical wall on the line of the lowest step of the Erechtheum, the walk would be 2. 65 m. wide; whereas the preceding one was only about 1.50 m. wide, and in the succeeding structure, only the three marble steps remained as a rem-

iniscence of its existence. It seems unlikely, also, that a terrace wall on that line would have affected the coursing of the east foundations of the Erechtheum so far to the south. Therefore, I think it much more probable that the four courses of the terrace formed four steps, each about 38 cm. high. In Figure 4 I have assumed a width of 40 cm. for each step, which, with the face of the lowest step on the line of the face of the later marble step, gives a terrace walk at the top 1.44 m. wide. The north edge of this terrace walk, for a width of

FIGURE 5. OUTER FACE OF THE EAST FOUNDATIONS OF THE ERECHTHEUM IN 1886

35 cm., and the three lower steps, would have been removed when the classic Erechtheum was built.

At the west end of the stretch within the later east cella, the old Acropolis limestone wall would support only the southern half of the poros slabs paving the terrace walk; hence there would be a real reason here for underpinning when the Cimonian steps were removed and the classic fifth century work begun.

In the years following 1885, while the excavations of the Acropolis were in progress, the German Institute in Athens took photographs of regions then laid bare but which have since been covered up again. One such photograph (Fig. 5)[1] shows the outer face of the east foundations of the Erechtheum. Unfortunately the plate has deteriorated very much in the course of time, and details which are fairly

[1] I am indebted to the kindness of the German Institute for permission to publish this photograph for the first time. Extensive retouching has been necessary to make reproduction possible. This has been done with the greatest care, and constant comparison with an early print and with another photograph taken from a slightly different angle, has, I think, assured against misrepresentation of the evidence.

clear on an old print in the archives of the Institute, have become quite indistinct. It can be seen, however, that at the bottom the foundations project well east of the euthynteria of the superstructure. The prehistoric wall A^4 is seen to run close against these foundations, indicating that it was cut through when the poros work was laid. Just to the north of the north face of A^4 there is a break in the coursing of the foundations. This break corresponds with the break noted on the inside of the foundation wall, which was taken as an indication of the position of the face of the north wall of the "east cella" *temenos*. Three courses up from the ground, to the north of this break, is a large and thin horizontal poros block, the position and level of which exactly agree with that of the hypothetical poros slabs paving the south terrace walk. Above this block the foundations shown in the photograph are in large part mediaeval or modern. It would seem as if when the southern part of the classic foundations had been laid as far as the Cimonian terrace wall, the remaining northeast corner was then filled in with very inferior material, which has since disintegrated; or that it was thought unnecessary to carry the foundations here solidly to the rock. And as a matter of fact, with the great flight of marble steps, which led up from the "theatral area," serving as a buttress and retaining wall to the north, very light foundations for the porch would have been adequate, though they would have indicated a marked decline from the solid construction of earlier work.

A reëxcavation of the foundations of the Erechtheum would probably bring to light many very interesting details, and would certainly confirm or refute many of the theories advanced in these papers, but in default of that, the faded photograph seems to me to show quite definitely that a terrace walk paved with poros slabs, much as has been deduced from other evidence, once flanked the "theatral area"; and that probably part of the pavement is still *in situ*, buried now underground.

The cuttings on the tops of the blocks inserted when the classic Erechtheum was built, to support the north ends of the pavement slabs of the older terrace walk, show the latter to have had irregular and slightly convex under surfaces. This points to their having been re-used blocks, damaged by fire, like the pavement blocks of the "theatral area." Their thickness as finished, seems to have varied from 0.325 m. to nearly 0.45 m.; their width, from east to west, as indicated by the cuttings of the underpinning, ranged from 0.80 m. to about 1.25 m., and their length has been assumed to be about 1.44 m. If the pavement blocks of the "theatral area" came from a wall about 0.85 m. wide, with courses roughly 0.65 m. high and blocks somewhere around 1.70 m. long, then the slabs of the terrace walk might very well have been broken orthostates from the same wall,—

originally two wall courses (1.30 m.) high, by a little over half the wall-thickness (0.425 m.) wide, and with the same length as the *plinthoi* (1.70 m.),—the under surfaces, as re-used, being those exposed to the fire in their original situation.

North of the "theatral area" a terrace, as has been noted before, of the height assumed for the "east cella" *temenos*, covered the lower part of the inner face of the Cimonian Acropolis wall. If the poros pavement of the "theatral area" originally stopped where it now does, this northern terrace must have extended far enough south to cover the irregular edge of the northern row of pavement blocks (Fig. 1). Yet it could not reasonably have reached far enough south to have covered the southern edge of any of them, for if in any case a block had been entirely covered, that block would have been unnecessary. Thus the southern limit of the northern terrace is located within a zone 30 cm. wide,—always assuming that the poros pavement is of its original extent. The northern terrace might have been a simple high level, held up by a sheer wall at its southern edge, but in view of the general character of the post-Persian revision, it seems much more likely that the northern terrace was treated like that to the south of the "theatral area," with a terrace walk and four steps at its foot. And if a line for the northern terrace be drawn to the east from the point of the angle of the Acropolis wall which marks the western limit of the "theatral area," it will be found that a terrace walk and four steps, of the same width as that determined for those along the southern terrace, will just reach to the proper zone on the northern row of blocks of the poros pavement (Fig. 1).

An argument in support of this arrangement is offered by two narrow slit windows in the Acropolis wall, at the points shown on Figure 1.[1] These date, beyond any question, from the original post-Persian building of the wall, and are therefore contemporary with the northern terrace. But their sills are only 0.55 m. and their heads only 1.10 m. above the level indicated for that terrace. On the other hand, the sills are 3.06 m. above the poros pavement of the "theatral area." In the one case they are too low, in the other too high to have been of any use. But with a terrace walk at the level of that to the south of the "theatral area," the sills of the windows would come 1.52 m. above the feet of a watcher standing there, and the heads 0.55 m. higher. And with the northern terrace as shown in Figures 1 and 6, the hypothetical guardian would stand only 0.35 m. away from one window and 1.00 m. away from the other. He could easily lean forward till his face came close against the openings.

At the east of the "theatral area" there was probably a similar arrangement also, for the east ends of the eastern blocks of the

[1] See Middleton, *loc. cit.*

poros pavement must have been covered, and yet the southern terrace walk, and consequently that at the east, too, must have extended east as far as the slab shown *in situ* in Figure 5, *i. e.* beyond the western face of the prehistoric terrace wall D. I am inclined to doubt that at the east the terrace rose in a straight wall from the terrace walk, as it did on the south and north, for in such case foundations should have been carried down to bedrock, and there should be some trace of them in Figure 5 or on the plans of Cavvadias.[1] I think it more likely that steps, not requiring deep foundations, led from the walk to the upper level (Fig. 6). There would thus be a flight, broken at mid-height, all across the east end

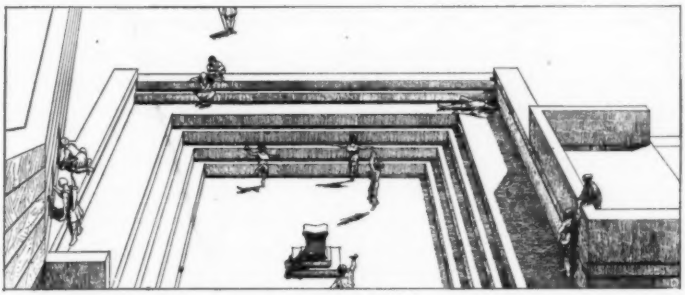

FIGURE 6. AREA NORTH OF ERECHTHEUM IN THE MIDDLE OF THE FIFTH CENTURY

of the "theatral area," which would prepare the way naturally for the continuous flight of marble steps built a half century later.

The level of the northern terrace, where its trace is visible at its west end, has been assumed for that of the "east cella" *temenos* directly across from it, but the level to the east of the *temenos* was certainly one or two steps lower. There does not seem to be any logical place in the northern or eastern terrace for a step down to this latter level, and therefore I have shown in Figure 1 the course on which the parapet of the *temenos* rests, running continuously along the northern, eastern and southern terraces. If the level east of the *temenos* were as shown in A and B (Fig. 2), there would then be a wall along it two courses high, which is rather too little for a parapet and rather too much for a simple coping. I therefore think the grade shown in C and D more probable; for a coping a single course high forms a very reasonable edge for a low terrace. At the east this coping may have continued across the top of the steps, as shown in Figure 1, or to avoid going up an unnecessary step and then down again, it may have stopped at the ends of the flight, as shown in Figure 5.

[1] *Loc. cit.*

The "theatral area" thus laid out has a length from east to west of approximately 9.75 m. and a width of 7.00 m., while its pre-Persian forerunner had a length of 9.35–10.75 m. and a width of about 6.65 m. As in the case of the "east cella" *temenos*, the extent of the sacred area remains almost constant, the change consisting of a re-orientation and a very slight increase in size.

The absence of a considerable number of poros blocks from the centre of the poros pavement of the "theatral area," requires some explanation. These blocks were not of a size or condition to have been of much use to mediaeval builders, and if they had been wanted for such use, they would probably not have been taken from the centre of the area, whence they would be much more difficult to extract than from around the edge. Moreover, five of them were not removed as a whole, but were broken across and only in part taken out. It seems clear from this, that the aim of the mediaeval workmen was not primarily to abstract blocks, but rather to make a hole in the pavement. And to one familiar with mediaeval, and in fact modern, practices in Greece, their ulterior object is evident,—they were digging for buried treasure! In the same way and for a similar reason blocks were removed from the floor of the *tholos* in the "Marmaria" at Delphi. The hole in the "theatral area" was apparently started by cutting through the blocks in a rough circle, the centre of which is marked on Figure 1 by a small ring. Needless to say, the seekers found no treasure, but at the north of their hole they must have uncovered the prehistoric wall A[5]. Led on by this mysterious underground structure, they evidently removed a good many more blocks to the north. In time the search was abandoned as fruitless, and the hole filled up again: thus the old wall was preserved for the discussions of modern archaeologists. But why did the diggers suspect that a treasure lay hidden beneath the poros blocks at the point marked with a ring on Figure 1. It must be that just at that spot there was something peculiar in the material or in the manner of laying of the pavement of the "theatral area," which was exposed when the marble slabs of the later pavement were taken away to serve in Byzantine or Turkish dwellings. Now it can be seen on Figure 1 that the ring comes exactly on the axis of the "theatral area," as laid out there. I do not think that this can be mere coincidence, but regard it rather as good evidence that the north and south limits of the Cimonian "theatral area" were approximately where I have located them; and the fact that the distance from this south limit to the terrace wall of the "east cella" *temenos*, as indicated by the classic foundations of the Erechtheum, agrees so perfectly with the distance from the north limit to the reëntrant angle of the Acropolis wall, seems to me to confirm the hypothesis of similar terrace walks along the north and south. The

vanished construction that hinted at buried treasure, in the middle ages, must have been the base of a dedicatory monument, or an altar, or the pedestal of a statue, which stood on the axis of the "theatral area" (Fig. 6) and about which the fifth century ceremonies there were centred. The two blocks missing from the hole to the southeast of the main hole in the poros pavement, were shallow blocks resting on bedrock, which had been dressed away here to receive them when they were laid. It is probable that they have merely disintegrated and were never intentionally removed.

There is little to say about the Cimonian constructions to the west of the "theatral area." The poros blocks of the pavement extend somewhat beyond the theoretical western limit of the area. But this is easily accounted for by the fact that the rows of re-used blocks were laid from east to west, taking them as they came without dressing them down to a predetermined size. And when the last row was laid it was probably found easier to let it project beyond the proper limit than to cut off the ends of the blocks. The stucco coating above would serve to true up the area.

The level of the southern terrace walk undoubtedly continued past the west line of the "theatral area" and the "east cella" *temenos*. Probably it gave the level for the area within the east part of the west cella of the later Erechtheum. And I think it probable that the four steps leading up to this terrace walk also continued west until they met the construction—whatever that may have been—surrounding the mysterious god-made holes in the Acropolis rock;[1] but here there is no material evidence at all.

The heavy poros foundations of the west cross wall of the Erechtheum may also be, in part, of Cimonian workmanship. They certainly do not belong with the classic foundations of the exterior walls, for they are noticeably inferior to the latter in technique. Furthermore, as Elderkin has pointed out,[2] the Acropolis rock has been carefully cut to provide level beds for the foundations of the exterior walls, but not for the cross wall foundations, nor do the courses of the latter bond in with the former at either end. It is Elderkin's opinion that the foundations of the cross wall are entirely of Roman date. Mr. Stevens, on the other hand, from a careful examination of the earth between the stones, has come to the conclusion that the two upper courses are Roman, but that the two lower ones are Greek. My own opinion is that Stevens is correct in considering the lower courses earlier than the upper ones, but that Elderkin is correct also in holding that they were not built along with the late fifth-century Erechtheum. The evidence seems to me to indicate, in fact, that they were built before, rather than after the

[1] *Erechtheum Papers* II, *A.J.A.* XXVIII, pp. 159–160.
[2] *Problems in Periclean Buildings*, p. 24.

classic work. For at the north end of the cross wall (Fig. 7), the corner of one of the poros blocks seems clearly to have been cut into, in order to lay the marble foundations of the north wall against and upon it. And since there is such ample evidence of a general reconstruction in poros after the Persian fire, on the exact orientation of this wall, and since the Cimonian restorations,—in the remains of the old gate on the site of the Propylaea as well as in the pre-Erech-

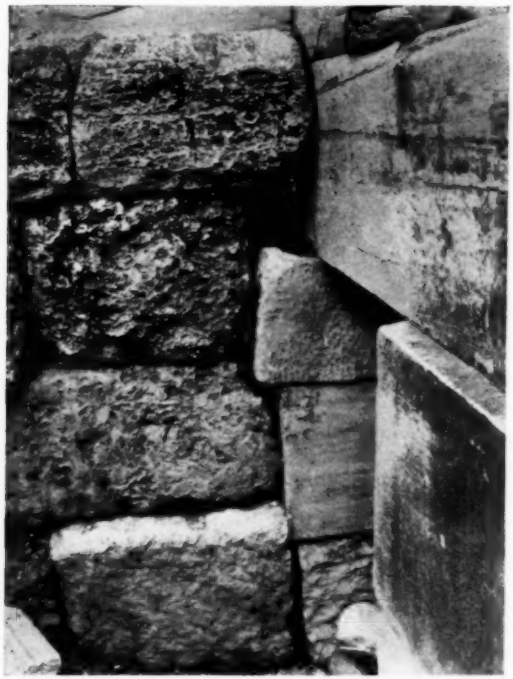

FIGURE 7. ABUTMENT OF WEST CROSS WALL AGAINST JAMB OF DOOR TO CRYPT

theum,—show many signs of hasty or careless workmanship, I see no reason to doubt that here also we have work of the post-Persian revision.[1] There is nothing to indicate what part this wall played in the general scheme, but its integral solidity and freedom from cuttings for contact with other stones indicates that no prehistoric

[1] The blocks of the two lower courses of this west cross-wall foundation are of approximately the same size as the poros blocks of the "theatral area." They are .43–.50m. × .50–.62m. × 1.20–1.22m. but do not differ greatly from the blocks of the foundation of the north wall of the Erechtheum which were cut to multiples of the Attic foot and are approximately .492m. × .656m. × 1.31m.

masonry preceded it there. The stone marked "g" [1] may perhaps belong to a construction farther east, which was replaced by the Cimonian cross wall; but further material evidence in this region is altogether lacking.

Still farther west [2] there are bits of post-Persian construction at the entrance from the north porch into the Pandroseum, and the poros foundations and rock cuttings for the foundations of the west part of the Pandroseum wall probably date from the same period. These will be further considered in a later paper. Lastly, there is a line of poros foundations running from the Acropolis wall, at a point still farther west, in a south-easterly direction toward the northwest corner of the Pandroseum.[3] The inside of the Acropolis wall [4] shows that to the east of these foundations the grade was probably the same as that of the "theatral area," while to the west it was over two metres lower. Probably there was a retaining wall here which, from the fifth century on, formed the western boundary of that whole congeries of ancient sanctuaries known to the Athenians as "the Erechtheum."

IV

"The Building Called the Erechtheum"

In periods of rapid architectural development the newest work very quickly becomes the oldest. The ancient shrines of Erechtheus and related deities, having been first in the Athenian effort to reëmbellish the Acropolis, were speedily surpassed by greater architectural glories. Eagerness and a ready supply of secondhand materials had no sooner clothed these shrines with poros, plaster coated and picked out with marble trimmings, than the Parthenon, drawing on the common purse of the Delian league, blossomed forth in finest marble of Pentelicon, with only a few old blocks, and those of marble too, reworked for the new construction. And hardly was that done, when the gates of the Acropolis, which Cimon had restored in plastered poros, trimmed with marble, were replaced by the great new Propylaea built, all of new material, with an architectural freedom and new daring,—as in the solid marble roof of the central hall,—which in its way surpassed the Parthenon. Thus, in less than fifty years the newest work on the Acropolis became the oldest there, and the "Temple" with its adjacent areas, though still supreme in sanctity, came to present an unbecoming air of poverty and neglect. So, as at the Propylaea, the Athenians set to work to replace the poros work

[1] Fig. 1, cf. *Erechtheum Papers* I, *A.J.A.* XXVIII, p. 16.
[2] *Erechtheum Papers* I, *A.J.A.* XXVIII, figs. 7 and 8, p. 10.
[3] *Erechtheum Papers* II, *A.J.A.* XXVIII, pl. VII.
[4] Cavvadias, *op. cit.* figs. 1, 2 and pl. K.

of Cimon with marble work of Pericles. The outcome was the present building "called the Erechtheum." [1]

In preceding papers I have given more or less elaborate restorations of earlier structures on this site. These lay no claim to certainty in the detailed arrangements shown,—though no detail has been put down without some reason to sustain it,—but the general outline of the history of the building cannot, I think, be doubted: *i.e.*, that from prehistoric times the site was marked with sacred areas; that these persisted with little change down to the time of the Persian conflagration; that they were then rebuilt with practically the same locations and sizes as before, but with a slightly shifted and now homogeneous orientation; and that the last rebuilding, in the second half of the fifth century, still paid scrupulous respect to the ancient areas and followed exactly the orientation of the Cimonian work. Apart from the substitution of marble for poros, the chief achievement of the Periclean building was the bringing beneath a single simple roof areas which had theretofore been variously roofed or left quite open to the sky.

If the restoration which I have given for the poros period be approximately correct, it is easy to see how the Erechtheum came to be designed as it was. (Fig. 1, shown in broken lines.) We have found no evidence as to what lay in the area of the western cella, nor have we examined as yet the region west of the Erechtheum, but there is patent proof that to the westward lay an enclosure walled on the north and west, and probably with an east wall also, not far from the later west wall of the Erechtheum. The poros foundations of the west cross-wall, which seem to be pre-Periclean,[2] indicate that between them and the east cross-wall there probably lay another sacred area, walled in, presumably, on the west cross-wall foundations. The space between this enclosure and the one to the west of the Erechtheum may also have been a sacred *temenos*, but if the stairs in the Porch of the Maidens are the successors of a prehistoric stairway at approximately the same point,—and this seems to me almost certain in view of the continuity in function shown elsewhere in the temple area,—then the region between them and the North Porch must always have served as an approach, a sort of forecourt corridor, giving access to sacred *temene* on the right hand and the left and to the stairway at the end.

This corridor-court the architect evidently sought to treat symmetrically. On the east it was to be flanked by a wall set on the midline of the foundations already there (one Attic foot east of where the

[1] The modern name for the ruin is sponsored by Pausanias, who says, in the course of his tour of the Acropolis (I, 26, 5), "There is also a building called the Erechtheum." The only other occurrence of this name in classic writings is in the life of Lycurgus, by the pseudo-Plutarch, p. 843e.

[2] See above, pp. 423–424.

wall was actually built), the stairs at the south would determine the axis of the hall, and the west side would be closed by the west wall of the Erechtheum set two feet farther west than where it stands today. There is ample evidence that in the original scheme it was the intention to have the west cross-wall and the western wall respectively one and two feet farther west than they were built.[1] At the north the great North Door was to stand on the axis of the hall, directly opposite to the stairway at the south. Along the east and west walls of the hall benches were to run; the ends of these, with the North Door, would practically fill the whole north wall. On the outside the North Door determined the axis of the wide North Porch. This was designed to cover and enclose the crypt with the god-wrought holes in the rock, to which there was to be an underground access from the interior of the building. The crypt fixed approximately the east line of the porch, and symmetry with this, about the door, brought the west line of the porch beyond the west wall of the building proper, so that it overlapped the north wall of the enclosure to the west. Aesthetically the result is unfortunate, but practically it permitted a door,—though one only about one metre wide, with the west wall in its originally intended position,—from the North Porch into the enclosure. Possibly there was an ancient entrance at this point which it was desired to perpetuate.

At the south, I believe it to have been the original intention to run the stairs straight up into the Porch of the Maidens, without any turn or landing, and to place the entrance, or rather the exit from the porch, in the middle of the south side, directly opposite the head of the stairs, and on axis with the hall below (Fig. 8, A). My chief reason for believing this is that the present arrangement is incredibly awkward (Fig. 8, B). The stairs are turned at right angles in as clumsy a way as could well be imagined, and in a way that would be distinctly dangerous to anyone descending them. The upper run of steps is only two-thirds as wide as the lower run, and at the head, instead of coming opposite the exit from the porch, the top step is partly masked by an anta, only 90 cm. away, which projects for a quarter of the width of the stair. Had the porch been built where originally intended, this anta would have come one Attic foot, —0.327 m.,—closer still (Fig. 8, C). But with the porch in the intended position the stairs could have been run straight for their full

[1] This evidence, which to me is entirely convincing, will be fully presented by Mr. Hill in the American School's publication of the Erechtheum, now in press, and consequently I shall not discuss it here, further than to mention two points which Mr. Hill brings out: first,—the sill of the North Door, laid before the west cross-wall or the west wall had been built, shows well-marked *anathyroses* for two bench ends, and thereby locates the intended positions of the north-south walls against which they were to lie; second,—the coffering of the ceiling of the Porch of the Maidens indicates that the porch was originally intended to be one foot wider, from east to west, than it was actually built.

width,—1.314 m.,—and would have landed about one and a quarter metres back from the opening in the centre of the south wall. The extra foot, if distributed equally among the three bays between the

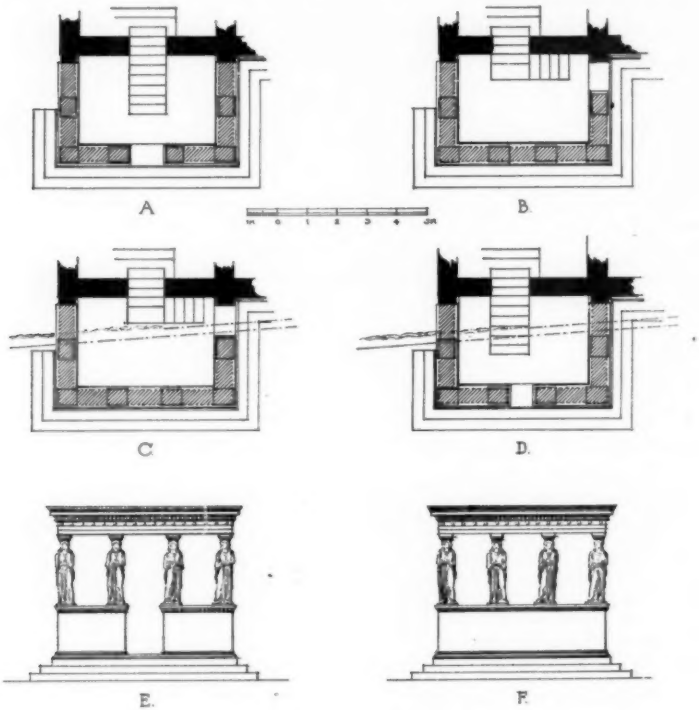

FIGURE 8. PORCH OF THE MAIDENS.

maidens, would have given an opening about 1.10 m. wide; or if the centre opening had been made wider than the side ones, it could have been of the full width of the stairs (Fig. 8, A and E).[1] But the actual

[1] There are a series of roundels or uncut rosettes on the top band of the architrave, above the caryatids. One of these comes directly above the axis of each of the two more central capitals of the façade (Fig. 8, F). Between these there are four other roundels, all spaced 0.34 m. on centres. At the corners of the porch the roundels do not come over the axes of the capitals, but are moved outward, as are the corner triglyphs of a Doric frieze, so that they are 0.36 m. distant, on centres, from their neighbors. Now if one more foot were added to the width of the porch, the increment (0.327 m.) might be divided among the fifteen interspaces of the roundels, increasing each by two centimetres, or an extra roundel unit might be introduced, in which case each axial distance would be decreased one millimetre. With the latter arrangement it is evident that the extra unit could not be distributed equally among the three bays, if a roundel is to come above the axis of the inner capitals, but would have to be added integrally to the width of the central bay, while the side bays would be diminished five millimetres each. This would

building of the Erechtheum was begun, apparently, at the east jamb of the South Door,[1] and the foundations were continued east from there along the south side, then across the east end, and the whole lower part of the north side was laid, at least up to and including the sill of the North Door, before it was decided to shift the position of the west wall and the Porch of the Maidens. The South Door, at the foot of the stairs, therefore, had to remain stationary while the axis of the porch was moved a foot and a half to the west. This, of course, made it necessary to change the stairway, in order to prevent it from debouching directly behind one of the Caryatids (Fig. 8, D). The stairs were naturally turned to the east, as only in that direction was there the necessary room for the run. But the heavy Kara stone foundations of the Hecatompedon, which would have been surmounted if the stairs had continued straight (Fig. 9), restricted the width of the platform at the turn (Fig. 8, C), and prevented the upper run of steps from being as wide as the lower one. For the resultant unsatisfactory arrangement the architect should, therefore, not be blamed, since it was clearly a makeshift dictated by circumstances beyond his control.

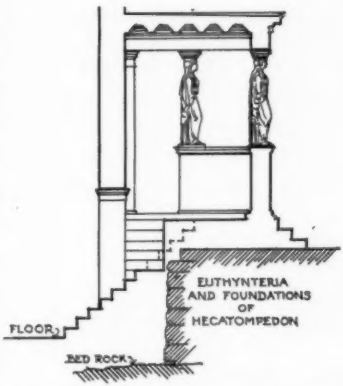

FIGURE 9. SECTION ON LINE OF EAST JAMB OF SOUTH DOOR

The function of the porch is evident: its existence was required by the existence of the stairs, to keep rain from flooding the lower hall. If the area occupied by the hall was unroofed, prior to the Periclean building, there would, of course, have been no necessity for roofing any preceding stairs, nor for covering their head with a porch. I think it probable, therefore, that the Porch of the Maidens, certainly the most famous single feature of the Erechtheum, is one of the very few which is not the successor of a similar construction on the same site.[2]

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make the central bay 2.061 m. between the axes of the capitals, 1.302 m. in the clear between the plinths on which the caryatids stand, and four centimetres more between the jambs of an opening in the podium below. The width of the south door of the Erechtheum, at the point where the steps pass through, is 1.314 m.; so that the steps would be about three centimetres narrower than the opening in the podium.

[1] See Erechtheum Papers I, *A.J.A.* XXVIII, p. 14, and fig. 11.

[2] In the Acropolis Museum at Athens are a considerable number of archaic female marble figures, which, having been damaged when the Persians burned the Acropolis, were respectfully buried not far to the north-west of the Erechtheum, prob-

The width of the porch, from east to west, was obviously determined by the width of the hall within, and changed when the latter was changed. The natural proportion of two bays of depth to three of width, as in the North Porch, determined its extent from north to south.

The position of the north wall of the Erechtheum may have been affected by some arrangement of the "west cella" *temenos*, of which we have no material remains. If it had been built as close as possible against the terrace wall of the Cimonian "east cella" *temenos*, it would have been a metre and a half south of its actual position. This would have left the terrace walk, somewhat reduced in width, outside to the north, flanking the "theatral area," and so far as the eastern section is concerned, would have exactly reproduced the previous arrangement. But the "west cella" *temenos* was on the same level as the terrace walk, and may very well have included the western extension of the latter within its sacred area. In that case the new wall would necessarily have been placed at the north line of the terrace walk, so as not to cut off the latter from the rest of the "west cella" *temenos*.

At the east end of the building, it was decided to continue the grade level in front of the Hecatompedon clear to the north wall of the Acropolis. Why this was decided I do not know, nor can I guess where the quantity of earth necessary for the fill was found. It must have been a laborious and expensive undertaking. But as a result

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ably at the time of the Cimonian reconstruction. (See Cavvadias und Kawerau, *op. cit.*, pp. 23–30, and figs. 1, 2.) These figures are undoubtedly votive offerings which were set up, on high columnar pedestals, during the sixth and early fifth centuries, somewhere in the vicinity of the shrine of Athena Polias. The position which seems to me to have been preëminently suitable for such statues is the stylobate of the north peristyle of the Hecatompedon, particularly in the eastern section. For there could have been no direct circulation between the columns into the "east cella" *temenos*, which lay a metre below the stylobate, while to the "west cella" *temenos* there was a sheer drop of two and a half metres. Now the cults and rites of Athens survived the fire, and votive female statues, changing in style with the times though probably always slightly archaistic, continued doubtless to be dedicated by priestesses and *Arrephoroi*. Pausanias mentions (Bk. I, 27, 4) a statue of the aged priestess Lysimache, "near the temple of Athena." It is likely that the foundations of the Pisistratid colonnade, which continued as a terrace wall, were adorned with new "*korai*" on high pedestals, some of them half a century old, at the time the new Erechtheum was begun. It seems probable to me that when the architect was called on to design a porch to cover the head of the little semi-private south stairway, which should not at all compete with the colonnaded porticoes at the north and east, it was the adjacent row of votive marble females which suggested to him the idea of supporting his porch roof on caryatids instead of upon columns. The caryatid although a well-established motif in Ionic architecture, as in the treasuries at Delphi, had hitherto been used only for supports between *antae*, and never, so far as we know, had an open porch, —not only prostyle, but with open supports on the sides,—been carried entirely on female heads. I do not believe that the maidens of the porch (refered to simply as *korai* in the building inscription) had any especial significance, either religious or mythological, but rather that they were supposed to count merely as six more votive statues, which should dominate and blend with the rows of their sisters stretching to east and west, and thus render the little porch at once harmonious with its surroundings, and inconspicuous.

of this decision, twelve steps were required to mount from the "theatral area" up to the new level at the east, where six had served in the Cimonian arrangement. To keep such a large flight within reasonable dimensions the east terrace walk was eliminated, and with great architectural cleverness the steps were united to the podium of the East Portico, against which they abutted. The arrangement—not to go into its details—required that the bottom of the stairs should commence just to the west of the inner line of the east wall of the Erechtheum, and brought the top at about the line of the stylobate of the east portico. This being the case, if the bottom of the stairs had been set at the line of the bottom of the Cimonian steps, then the new "east cella" *temenos* would have been extended to the east by two-thirds of its original size. On the other hand, had the earlier east line of the *temenos* been maintained, then the "theatral area" would have been encroached upon by the new stairs, to the extent of nearly four metres. The line adopted is a compromise, the east cella being enlarged by one metre, and the "theatral area" decreased by three. And by extending the "theatral area" at the west, up to the new North Porch, the lost three metres were gained again.

The terrace walk at the south and east sides of the "theatral area" being thus eliminated from the plan, it would have presented an awkward, unbalanced appearance to leave the section along the north side. So it, too, was removed, and the new pavement of the "theatral area" was extended clear to the north wall of the Acropolis. Evidence of this is to be found in the damaged drums of the Parthenon, which were used as foundations for the wall at this point. The second drum to the east of the reëntrant angle in the wall has a shallow circular cutting in its upper surface, as if to receive the base of a small stone shaft. The next drum to the east is cut down all the way across its top, for a depth of 20–25 cm., leaving, along the base of the poros wall, a band a little under 20 cm. wide, at the original level. A small continuation of this cutting appears on the column drum previously mentioned. The rectangular cut in the second and third drums shows clearly in the photograph, (*A.J.A.* XXVIII, p. 148, fig. 4.) but the circular cut is barely visible. Evidently a rectangular base, slightly longer than the diameter of a column drum, stood here against the Acropolis wall. The cuttings for the rectangular and circular bases are both well made, the workmanship is certainly Greek or very good Roman. So it is evident that the north terrace of the "theatral area" was removed before the beginning of our era. And as there is no indication of any alteration in the Erechtheum or its surroundings between the time of Cimon and that of Augustus, save that at the time of the classic Periclean building,—at which time it is certain that the "theatral area" was paved with marble, and the steps on

the east side built,—I can see no reason to doubt that the little terrace against the north wall was removed then. The lower part of the wall, which was previously hidden by the terrace, is built of rough unsightly re-used poros blocks, and must have been covered up again by a veneer, probably of marble slabs, and as the cutting in the third column drum indicates, less than 0.20 m. thick.

The Periclean "theatral area" was, then, approximately the same in length from east to west as its forerunner, though somewhat shifted to the west. Its width was increased by 2.00–3.50 m. along the northern side, and the wide and high new steps on the east increased the space available for a standing audience by about 50 per cent beyond that of the Cimonian arrangement. The North Porch also provided considerable standing room for spectators, though whether this was a gain or not is uncertain, since we do not know what preceded it in that location. The only loss to offset these gains was the terrace walk, which obviously was not in any way a sacred area. The windows in the north wall, of course, became useless after the removal of the north terrace walk; wherefore we may presume that though they are today the sole surviving windows, they probably were only two of many in the circuit of the Acropolis, and had no particular religious or other significance.

The position of the south wall of the Erechtheum may have been determined by the desire to keep the "east cella" *temenos* of the same width as in the post-Persian revision; or it may have been determined by something in the "west cella" *temenos* of which we now know nothing; or if the foundations of the Hecatompedon were not trimmed back to the line Z (Fig. 1), it may be that a desire to carry the new south wall on entirely new foundations, clear to bed rock, caused the south face of the wall to be set just north of the northernmost point of the Hecatompedon. I rather doubt this latter reason, however, as I think it much more probable that the south line of the Cimonian "east cella" *temenos* was Z rather than Y (Fig. 1), and I do not believe that the Periclean builders would have hesitated to support a wall partly on old foundations and partly on new.

The east cross-wall within the Erechtheum was, of course, fixed by the west terrace-wall of the "east cella" *temenos*. Its western face seems to have lain one Attic foot west of that of the older wall, but where it joins the north and south walls of the Erechtheum the trace is two feet wide,—the normal width for Erechtheum walls. Apparently a full new wall was not built against the terrace wall for fear of encroaching unduly upon the "west cella" *temenos*, but a sturdy marble veneer, one foot thick,—which seems, incidentally, not to have required any new foundations, since there are no cuttings in the Acropolis rock,—was applied to the poros wall, which, in turn, had been built upon the base of, and in part against, the heavy

Mycaenean wall. Mr. Stevens has discovered[1] that while the stones of the east cross-wall do not tongue into the north and south walls in their lower parts, yet above the floor level of the eastern cella they do so. In the lower parts L-shaped stones, one arm of which was part of the regular ashlar of the north and south walls, projected perhaps one and three feet alternately, or perhaps more or less, to meet the veneer stones of the cross-wall. The projecting parts have now all been chiseled off. Probably the north and south walls were built to a considerable height before the cross-wall was veneered or the "east cella" *temenos* disturbed by raising its floor to its classic level: but when this had been done and the cross-wall veneered, the upper parts of the north and south and cross-walls were probably built simultaneously, all of blocks two feet thick, with alternate courses of the cross-wall tonguing into those at its ends. The lower construction with L blocks, which are expensive in material and workmanship, is quite abnormal, and supports the belief that in its lower part the cross-wall had not the normal thickness of two feet, as it had above. It is certainly not ideal construction to carry a two-foot marble wall half on an old poros wall and half on a new marble one-foot facing, but with the blocks tied each to the others with iron clamps and dowels, as was customary in Greek work, and with the foundations going to bed rock, the wall would actually be amply strong. And that the architect of the Erechtheum would not have hesitated to build in this manner is evident, for, in the south wall of the building, the exterior base course and the orthostates above it were backed on the inside for their full length by wall courses, one of which,—that against the base course,—is only one and a third feet thick, while the two above are only one foot thick. The upper two courses have now all fallen away, probably as the result of the fire which badly calcined the interior of the building, but the wall apparently still stood. The construction here is, in principle, identical with that suggested for the east cross-wall.

I have made no attempt in this paper to give a full explanation of how the Erechtheum was designed, and many factors now unknown undoubtedly had influence upon the plan. The suggestion of Dr. Doerpfeld, that originally the architect conceived a building which should be symmetrical about the axis of the North Porch and the hall leading therefrom to the Porch of the Maidens, with a west wing enclosing the Pandroseum to balance the present eastern part, seems to me quite within the possibilities. The fact that the distance from the axis to the western end of the Pandroseum is practically the same as that to the eastern wall of the Erechtheum lends strength to this hypothesis, and the latter wall may well have been built to the east

[1] Detailed description with drawings of the significant stones will appear in the American School's publication of the Erechtheum.

of its Cimonian predecessor in order to balance the westward extent of the Pandroseum. But while the building may have been designed to be symmetrical from without, it could never have been so in the arrangement of the rooms within. For, as we shall see in a later paper, the area which would have formed the western wing was divided lengthwise from east to west, with the southern part on a higher level than the northern; while that of the eastern wing,—which was actually built,—was divided transversely from north to south, with the eastern part on a higher level than the western. And it seems certain to me that by the time the west wall of the classic structure was begun, all idea of a symmetrical building was definitely abandoned. In any case, the fifth-century architect was at no time free to plan a structure wholly new, the form of which was subject only to his judgment; his problem was rather how to house a congeries of old and very sacred *temene*, whose positions might not be changed nor areas at all reduced. So while there is a strong suggestion that a symmetrical scheme was originally designed, yet it is also quite possible that the strange irregularities of the existing building may be accounted for by irregularities in what was there before, and do not need the hypothesis of any change in plan to make them rational.

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A PRELIMINARY REPORT ON THE EXCAVATIONS AT PISIDIAN ANTIOCH AND AT SIZMA[1]

DURING the months of May, June, July and August, the University of Michigan conducted excavations at Yalivadj in the Sparta Vilayet of Asia Minor, where is the site of the ancient Pisidian Antioch, or Colonia Caesarea, first identified by Arundell in 1833. It is about five hours by horse trail from Ak-Shehir, the ancient Philomelium, on the "corridor" railroad route from Constantinople to Adana. This trail passes over Sultan Dagh, the majestic mountain called in ancient days Olympus. There is a longer route by chaussée with beautiful views from the pass which we were able to traverse in four hours by motor, though the last stretch of ten miles in the plain to Yalivadj is not paved and we were obliged to pass over rutted roads, along beds of streams, across irrigation ditches, harvested fields, and in one case over a long stretch of plowed land. Yalivadj is situated in a most fertile plain with beautiful gardens and groves of tall sentinel-like poplar trees, on the banks of the ancient Anthius which flows through a picturesque gorge to the east of the hill of Antioch. The ruins are twenty-five minutes' walk northeast from the modern village, about two hundred feet higher than the modern city which is about 3800 feet above sea level. The ancients selected a natural hill with a magnificent view of the amphitheatre of mountains surrounding the plain. When we arrived from Smyrna in early May the snow on these mountains added much to the grandeur of the locality. Not only was a beautiful site chosen for ancient Antioch, but the city was placed on an elevation which has a natural protection in the slopes on all sides. Especially precipitous are the sections to the north and east where the Taurus mountaineers, who were such a thorn in the flesh of the Romans, would be likely to make their first approach. By Antioch passed the great Via Sebaste on to Iconium. This was the route along which marched many an ancient army.

Antioch itself was founded on the probable site of an earlier Phrygian sanctuary by Seleucus Nicator, before 280 B.C. It was made a free city by the Romans in 189 B.C. and remained Greek till the time of its last king, Amyntas. Our excavations have not yet located this earlier Greek city, though some Greek inscriptions and a Greek draped statue of Victory of this period, if not earlier, have been dis-

[1] I owe much to articles and suggestions of Sir William Ramsay, who with Callander and Calder previously excavated at Antioch and who was present for a month.

covered. The excavations have brought to light, however, most important remains of the Roman city which was founded by Augustus. During the years 27 to 25 B.C. King Amyntas had attempted to subdue the brigand tribes of the Taurus plateau and mountains which rise south and southeast of Antioch. These are the people who preyed so much on Pisidian Phrygia, called the Homanadenses. In 25 B.C. they took Amyntas prisoner and put him to death. A will left by him constituted Augustus heir for the province of Galatia. The idea of inheritance was a kind of legal fiction, since the relation of the Roman Emperor to King Amyntas was one of absolute power on his side and absolute subjection on the part of Amyntas. In accordance with Roman religion, however, Augustus accepted the inheritance and all the obligations attaching thereto with proper formality and legality. Augustus ultimately paid his debt in full and performed the religious duties of avenging the death of Amyntas. He, however, was busily occupied with affairs at home and could not undertake at once the campaign against the Homanadenses. He did what he could by founding the frontier colony of Antioch and postponed the war. At last about 13 B.C. at the age of fifty he found opportunity to begin active military operations, with Antioch as his base. The city had already proved to be almost as important as Ancyra, the capital of the new province of Galatia. Augustus selected for this difficult task the capable and energetic Publius Sulpicius Quirinius, who is mentioned in the second chapter of Luke as the governor of Syria. He appointed him consul in 12 B.C. After elaborate preparations during the three years from 10 to 7 B.C. Quirinius by characteristically cruel Roman thoroughness pacified the Homanadensians and the whole Taurus range for more than three hundred miles. He left no grown men in the country and forced the younger generation to adopt Roman customs. By 6 B.C. the war was over, and the organization of the Taurus region and the great system of Roman roads were begun. Antioch, founded with soldiers of the fifth Gallic legion, had now become a unique Roman frontier colony and because of its strong situation a great Anatolian centre of military defence, as well as the centre of civil administration in southern Galatia. Some of the most interesting large sculptured reliefs which have been found in our excavations portray the conquered Pisidian leaders. They are so individualized that they undoubtedly represent definite Pisidian chiefs. From now on Antioch continued to thrive under Augustus and the succeeding Roman Emperors down to the fourth century, when Christianity evidently flourished and at least one great Christian church was built. Antioch had an interesting Byzantine history as our excavations show, but in all probability was finally destroyed by the Arabs about 713 A.D. Many traces of fire and destruction have been unearthed in the excavations, and much

damage was done by the many earthquakes recorded to have taken place at Antioch. For hundreds of years, furthermore, the hill of Antioch has been a useful quarry for the inhabitants of Yalivadj and neighboring villages. Even while we were working at Yalivadj a half mile of macadam road was built of stones from the ancient site.

The excavations undertaken at the suggestion of Sir William Ramsay and with his co-operation, have yielded results of much historical and artistic importance. The grade leading up to the great religious

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FIGURE 1. GENERAL VIEW FROM THE WEST OVER THE BYZANTINE CHURCH IN THE FOREGROUND, UP THE STEPS OF THE PROPYLAEA TO THE ROCK SEMICIRCLE BACK OF THE GREAT TEMPLE

centre (Fig. 1) at the top of the hill was so steep that a stairway had to be built. Here it was that we made our first excavations which brought to light a stairway of about a dozen steps, seventy feet across. Great masses of sculptural and architectural pieces were piled together on the stairs and on the square in front of them to the west (Fig. 2). There were enormous cornices and architraves which would tax the skill of the best modern engineers to move. There were about forty voussoirs from the three arched passage-ways of the stairs. One long section of the architrave has holes for bronze letters which seem to mention the name Augustus and show that this was a memorial to him. Many large slabs of sculptured reliefs were found. Several represent winged genii, some draped and female, others nude and male, holding swags or festoons. Two enormous reliefs (Fig. 3) represent Pisidian captive chiefs with their hands bound behind their backs. One is nude and the other draped, an example of the variety which was found everywhere in the architecture and sculpture of

ancient Antioch. The original curved edges which are preserved on the blocks, leave no doubt that these tremendous slabs were placed over the arched entrances. There were discovered parts of the frieze picturing cuirasses, shields of various forms, quivers, swords, spears, other weapons of war and even galleys of war. Other parts of this same frieze show a Triton on either side of a pile of armor. Two such complete series of Triton reliefs (Fig. 4) have been put together and a similar complete sculptured block was found at the triple arched

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FIGURE 2. THE SQUARE OF TIBERIUS FROM THE NORTHEAST

gateway which was erected lower down near the west wall of the city, somewhat similar in character to the Propylaea. Drums of engaged Corinthian columns, which were about twenty-five feet high, and magnificent Corinthian capitals have been unearthed. Even the bases which indicated the locations of the piers of the arches have been discovered.

More than two hundred fragments of a copy of the *Res Gestae* of Augustus were found in front of the stairs. This was a long record of Augustus' achievements in seven or eight columns of forty lines of forty-two to fifty letters each. It was carved by many different hands, as the spacing and style of the letters differ widely in different sections. The original was engraved on two bronze tablets set up in Rome at the entrance to the Mausoleum of Augustus. These have perished long ago, but a marble copy in both Greek and Latin is still preserved on the walls of the Augusteum at Ancyra, the modern Angora. A Greek copy was engraved at Uluburlu, the ancient Apollonia, but only a Latin copy was put up at Antioch,

as our excavations have shown. The fragments discovered help restore several lacunae in the Ancyra text and there are several additions which are not in the Monumentum Ancyranum.

Enough has been found to make possible the reconstruction of the Propylaea with its three arched passage-ways, with façade decorated with four Corinthian columns, with architrave, frieze and cornice

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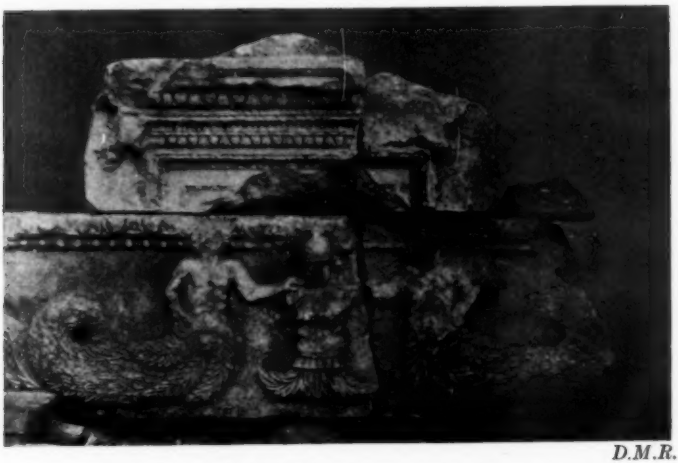
FIGURE 3. A PISIDIAN CAPTIVE FROM THE PROPYLAEA FOUND BY RAMSAY

above. The sculptured captive Pisidians in the spandrels of the arches commemorate Augustus' victories on land. The frieze with Tritons, Neptune, dolphins, and other marine symbols commemorate his victories on the sea, especially at Actium. In front of the magnificent Propylaea was unearthed a large well-paved square with many an incised circle or rectangle on which the Romans in their idle hours could play all sorts of games. In front of each of the four piers already mentioned, at the east end of the square we found a system of

pipes. In one case a square slab with a hollowed centre and a hole clear through is in place (Fig. 2). We raised this slab and discovered beneath a terra-cotta water conduit for supplying the fountain above. The same was true of two other fountains, and a fourth was found to have an original bronze faucet-joint beneath. The water system of Antioch was superb. Everywhere in the excavations terra-cotta pipes have been found, and there are imposing remains of the aqueduct which brought water from a natural spring six or seven miles away to



D.M.R.

FIGURE 4. PART OF THE TRITON FRIEZE FROM THE PROPYLAEA. ABOVE IS THE EXQUISITELY CARVED DOORFRAME WHICH FITTED IN THE CENTRE OF THE EAST PEDIMENT OF THE TEMPLE OF AUGUSTUS

the north side of the city, whence it could be distributed in terra-cotta or lead underground pipes. The pressure would be great enough to carry the water to the highest parts of the ancient city. The great weakness of Antioch was that there were no natural springs and that, as soon as an enemy could cut the aqueduct, the city would be obliged to capitulate.

One of the most interesting finds was that of a long Latin inscription which had been built into one of the later north shops which encroached on the square. This stone luckily gives the name of the square below the stairs as *Tiberia Platea*, the Square of Tiberius (14–37 A.D.), who perhaps erected this memorial to his great predecessor Augustus. He named the square below the stairs after himself, just as another inscription informs us that the open space to which the stairs led up was called the *Platea Augusta*. The same stone contains in capital letters a long list of the honors conferred on

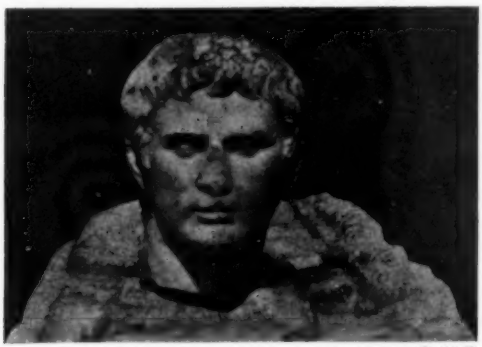
Galerius Rusticus, the consular legate of the Emperor Do whose name has been erased. There is also a Latin edict in small Latin letters of forty-four lines in which L. Antistius Rusticus, the prætorian legate of Domitian, whose name is here not erased, writes a personal letter and veto to the people of Antioch to prevent profiteering, to control the price of grain after a severe winter, and to provide sufficient seed for the next harvest. This Antistius died in Asia Minor and his ashes were carried in a small urn by his devoted wife Nigrina all the way to Italy, as his contemporary the famous poet Martial records in an epigram (IX, 30; cf. also IV, 30 and *C. I. L.*, VI, 27881).

Another important inscription was on an enormous block (Fig. 2) in the centre of the Square of Tiberius. The bronze letters have disappeared but from the holes left I have made out that T. Paebius Asiaticus, son of Titus, of the tribe Sergia, an aedile for the third time paved this square at his own expense. To the south of the round stone are two or three incised Latin crosses, showing that the square was still used in Byzantine days. On the square were also found parts of several statues, and a beautiful draped female headless figure of pure Greek workmanship which reminds one of the Victory of Paeonius and of the Nereids on the Nereid monument from Asia Minor, now in the British Museum.

In the shops built in later days on the north side of the Square of Tiberius were found large jars for storage, such as are still made in Yalivadj, and a score or more of bottoms of small glass goblets, many coins, altars, and a large stone plate. In later days on the southwest side of the square itself just below the two steps a round building was erected of which there are enough architectural fragments for a restoration, including a part of a cornice with the name of Antoninus Augustus, who is better known as Marcus Aurelius.

The Propylaea led up to the Square of Augustus, at the east end of which was a semicircle cut out of the native rock. In front of this was a two-story colonnade with Ionic columns above, and below a Doric colonnade, of which the lower parts of several columns are still in place, most interesting examples of the rare Roman Doric order. Even here the workmanship is Greek. In front of the centre of the semicircle is a Roman temple, the base of which also was cut out of the native rock. The upper part was built of solid blocks of beautiful white marble, found in great numbers as they had fallen. There was a portico of four Corinthian columns across the front. A base and a capital which have been recovered give material for reconstructing the order. There were long architraves with a delicately carved astragal at the top of each band, to harmonize the elaborate refined floral design below with the bulls' heads above. Several long sections, including two ends, have been dug up. There have also been

discovered a score of blocks of the frieze with wonderful bulls' heads bound together with garlands of all sorts of leaves and fruits. A rinceau of scrolls and floral ornaments carried the line of the pilaster capitals around the cella wall. Many blocks of the cornice have been unearthed, as well as the four corners of the two pediments with a carved door-frame (Fig. 4) which fitted in the centre of one of them. Even a colossal central rear acroterium, nearly six feet high, came to light. It consists of curving scrolls, palmettes, caliculi, etc., with a well-carved smiling female figure in their midst, holding a crescent-shaped branch in either upraised hand and having a round disk on



D.M.R.

FIGURE 5. HEAD OF AUGUSTUS

her head. Parts also of the corner acroteria are in hand. This temple, which was probably in honor of Augustus and Mên, was of a richness and refinement rarely equalled in remains of Roman architecture. It combined with Roman massiveness and strength a wonderful vertical and horizontal rhythm and represents the acme of Roman architecture. The masons' marks are in Greek and confirm the supposition that the temple is of Greek workmanship. Enough of the architectural units have been found to make possible a very accurate complete reconstruction.

Excavations were also conducted at the west end of the Square of Tiberius. Here were discovered Byzantine houses built of Roman fragments. In one of them near the surface to my great surprise I found a head which after two days' cleaning changed from its dark, dirty first appearance to clear white marble. Because of its resemblance to the Prima Porta Augustus in the Vatican, I am inclined to call it Augustus (Fig. 5). In respect to technical anatomical skill and impressive protraiture it rivals the best of the remarkable series of sculptured portraits of the great Roman Emperor. Further to the

west was excavated a Byzantine church which was erected in the form of a Latin cross (Fig. 1).

On a lower level, some distance to the northwest below the main ridge which extended from the semicircle to the Byzantine church, was revealed a Christian basilica which was more than two hundred feet long. The nave was paved with a colored mosaic with patterns in yellow, blue, white, red, and rose of conventional design such as pot-hooks, guilloches, lozenges, crosses, and floral ornament, of which Mr. Woodbridge has made accurate colored reproductions. Under the mosaic level we found several graves with the skeletons still in place. There were four interesting Greek inscriptions worked into the mosaic patterns. One says, "I shall go in to the altar of God." Another tells us that, "In the time of the most reverend bishop, Optimus, Eidomeneus, the reader, having prayed to God, paid his vow." Another says, "In the time of the most reverend bishop Optimus, I, Eutychianus, having prayed to God, fulfilled my vow." Optimus was one of the leaders of the orthodox party in the church and became bishop of Antioch about 375–381. He is mentioned by Theophanes and Theodoretus. The basilica inscriptions prove that his name was Optimus, not Optimius or Optisius as in two Patmos manuscripts. The building was reconstructed at least three times, probably not on the site of the synagogue, where Paul and Barnabas according to Acts XIII preached, because in general Jewish territory was taboo to the Christians.

Just at the end of our campaign were found near the western edge of the city numerous architectural and sculptured fragments of a monumental gateway, inside of the central passage of which was a fountain decorated with dolphins. I had previously dug up a long sculptured block with a Triton on either side of armor. This gave us a clue and excavations revealed the four piers of an enormous triple arch built into the city wall in the usual Vitruvian manner so that the right unshielded side of the enemy was exposed. The triple arch, originally about 150 feet wide by 40 feet high, was decorated with representations in high relief of figures holding military emblems. Above these was a great architrave with holes for bronze letters, which were not sunken in the surface as at the Propylaea, but stood free, attached only by clamps. About a dozen of these cast letters were found, including TRIB. and C.IVL. ASP. They are six inches high. There was a frieze with beautiful floral designs and a cornice with magnificent lion-head water-spouts with protruding tongues. Many enormous sections of the cornice were extricated from the huge collapsed pile. This is an important addition to the list of so-called "Triumphal Arches" and seems to have been built by the well-known C. Julius Asper in the third century A.D.

The University of Michigan Expedition has also made excursions

of exploration to many villages in Asia Minor for the purpose of copying and photographing historical Greek and Latin inscriptions. More than two hundred have been so studied, among them a small number of newly discovered unpublished texts. Even in the case of some of those already published corrections or new readings have been made.

For three weeks in August a trial excavation was also conducted at Sizma about twenty miles north of Konia. Here was what Sir William Ramsay thought would be a fruitful mound for excavation. Cybele was worshipped here under the title of Mother Zizimmene, a name which survives in the modern Sizma. It was hoped that her temple which owed its wealth to the productive cinnabar mines was located here, as this is the region of the mines where operations were resumed by the Whittals a few years ago at great loss and with the discovery that the ancients had exhausted most of the mines. The mound into which we dug ten trenches in all directions yielded many potsherds and a score of fairly well preserved important and interesting handmade red and black and brown prehistoric vases of different shapes, dating between 2500 and 2000 B.C. Some have incised zigzag decorations, others are rough, others polished smooth, but with no decoration. There is much resemblance to prehistoric ware found at Yortan, in the lowest strata at Troy, to the vases found by Papabasileios on Euboea, to early Cycladic vases, to pottery from a mound in northern Pisidia (Ormerod, *B.S.A.* XVIII, p. 80, pls. V–VII) and to early Cypriote vases, especially in the case of jugs with long projecting spouts which the Germans call "Schnabelkanne." A very interesting early rhytum in the form of a boar's head, and primitive vase-fragments with animals in relief were also found. Near the surface of the mound we found an inscription with a dedication in Greek of Roman date by Dorymenes, son of Bianor, to the Mother Zizimmene, whose name survives in the modern Sizma. Though we dug down twenty-five or more feet, we discovered no temple or other ancient buildings, but only débris, ashes, and slag. We came across furnaces which indicated that perhaps the hill was used in ancient days for smelting. It certainly is an ancient site and the pottery found shows what kind of vases the ancient miners used and a deposit of one hundred and fifty knuckle-bones or astragali indicated that the ancient Sizmians loved that game as much as the moderns.

DAVID M. ROBINSON

THE JOHNS HOPKINS UNIVERSITY

1924
January-June

ARCHAEOLOGICAL DISCUSSIONS[1]

SUMMARIES OF ORIGINAL ARTICLES CHIEFLY IN CURRENT PUBLICATIONS

SIDNEY N. DEANE, *Editor*

Smith College, Northampton, Mass.

GENERAL AND MISCELLANEOUS

Springer's Art in Ancient Times.—The first volume of Anton Springer's *Handbuch der Kunstgeschichte* has appeared in the twelfth edition, revised by PAUL WOLTERS, who succeeded the late Adolf Michaelis as responsible editor of this valuable work. The chapter on "the Beginnings of Art" is contributed by PAUL SCHUCHHARDT, and F. W. v. BISSING has revised the chapters on Oriental and (in part) Egyptian art, so that the work of Wolters himself begins with the treatment of Troy and Aegean art. The new edition has more pages than its predecessors and more and often better illustrations. Recently discovered monuments are not neglected, and in general the work is successfully brought up to date. The bibliography, though brief, is carefully selected, and the index is excellent. (*Handbuch der Kunstgeschichte*, von ANTON SPRINGER. Band I. *Das Altertum*. Zwölfte verbesserte und erweiterte Auflage, nach ADOLF MICHAELIS bearbeitet von PAUL WOLTERS. Leipsic, 1923, Alfred Kröner. xii, 608 pp.; 8 colored pls.; 8 heliotype pls.; 1078 figs.)

Life in the Ancient East.—A recently published book by the Rev. JAMES BAIKIE, author of *The Sea-Kings of Crete*, is entitled *Life in the Ancient East*. A brief introduction on methods of archaeological exploration is followed by chapters on discoveries at Abydos, Tell el-Amarna, Thebes (including the tomb of Tutankhamon), Lagash, Babylon, Nineveh, Troy, Mycenae, Cnossus, and Gezer. (*Life in the Ancient East*, by JAMES BAIKIE. New York, 1923, Macmillan. viii, 463 pp.; 32 pls.; map. 8vo. $5.)

Reports Before the Berlin Archaeological Society, 1921.—At the February meeting of the Berlin Archaeological Society, new matters brought out were: the building history of the round church of St. George at Salonica, with the contemporary Arch of Galerius, erected 306 A.D., and a colossal archaic Kriophoros on a high pedestal, at Thasos (See *A.J.A.* XXV, 1921, p. 297), both of these excavated by the French Army; the numerous pieces of sculpture found by the Italians at Cyrene (see *A.J.A.* XXVI, 1922, p. 371); 18 graves of criminals found on the shore at Phaleron, which prove the practice of crucifixion in Attica (see *A.J.A.* XXVIII, 1924, p. 189); the tomb of Niausta, in the region of Salonica, dated about 300 B.C., which contains a large and striking painting (2.05 x 1.11 m.) of a mounted warrior attacking a barbarian. At the April meeting, C. SCHUCH-

[1] The departments of Archaeological News and Discussions and of Bibliography of Archaeological Books are conducted by Professor DEANE, Editor-in-Charge, assisted by Professor SAMUEL E. BASSETT, Professor C. N. BROWN, Miss MARY H. BUCKINGHAM, Professor HAROLD N. FOWLER, Dr. STEPHEN B. LUCE, Professor ELMER T. MERRILL, Professor JOHN C. ROLFE, Dr. JOHN SHAPLEY, and the Editors.

Beginning with Volume XXIX, the Editor-in-charge of News and Discussions will be Professor E. H. HEFFNER, University of Pennsylvania, Philadelphia, Pa.

No attempt is made to include in this number of the JOURNAL material published after June 30, 1924.

For an explanation of the abbreviations, see pp. 115–116.

HARDT described the nurago of Sta. Anastasia (see Taramelli, *Mon. Ant.* XXV) showing it to be not a temple but a well-house at which a cult of water deities was observed, and H. W. AMELUNG described a colossal figure of a goddess found in a vineyard near Ariccia, probably from a bronze original of the middle of the fifth century (perhaps by Hegias) and representing Artemis or Hecate; also his many very important discoveries of statues, heads, etc., in the magazines of the Vatican, which include two original heads from the metopes of the Parthenon, some Roman portrait heads, and many important replicas or missing parts of known Greek and Roman works. At the June meeting, A. IPPEL spoke on the tomb of Petosiris, chief priest at Hermoupolis, which was discovered in 1920 in the region of Tell el-Amarna, and is dated by Greek graffiti and Egyptian hieroglyphs at about 300 B.C. The rich decoration in relief is of great value for the history of the relations of Greeks and natives at that epoch, for the dating of other similar reliefs, for the origin of the oldest type of Isis, with the "Isis knot," for the connection of old Egyptian and Alexandrian culture, and for the architecture of the time. (*Arch. Anz.* 1921, cols. 244–247, 259–262, 262–264.)

The Askalon Culture.—In *Mannus*, XV, 1923, pp. 187–206, J. BAYER discusses the chronology and character of the prehistoric culture denominated from discoveries in Palestine the Askalon culture. Accompanying tables illustrate the geographical extent of this culture and its relations to the successive glacial and interglacial periods.

Lacquer Statues in China.—In *J. Asiat.* CCII, 1923, pp. 181–207. PAUL PALLIOT shows that statues in "laque sèche" were not invented or first made in Japan, but were made in China, where they were called kia-tchou, at least as early as the fourth century.

Oriental Objects in the Museum at Geneva.—A number of objects of Oriental art in the collection of the Museum at Geneva are described in *Syria*, IV, 1923, pp. 225–233 (2 pls.; 5 figs.), by W. DEONNA: (1) a gold band with a Greek inscription which M. Deonna restores Χαῖρε, Πέτρε, οὐδὶς ἀθάνατος, "Courage, Peter, no one is immortal." A similar inscription is found on a Jewish grave stone of the fifth century in Rome. (2) A fragment of a gold band, with a representation in relief of the adoration of a sacred tree. This is probably Cypriote, of the eighth or seventh century B.C. (3) A glass cup, with the inscription, Κατάχαιρε καὶ εὐφραίνου. (4) A series of ten Palmyrene busts, four of female subjects, six of male. (5) A Kufic inscription, said to have come from the region of Hedjaz, and dated 406 H. (1015 A.D.)

Mussulman Art in the Louvre.— In *Syria*, III, 1922, pp. 251–260 (3 pls.; 3 figs.), IV, 1923, pp. 66–75 (4 pls.), the new galleries of Mussulman art in the Louvre are described by G. CONTENAU. A sketch of the development of the collections of the Louvre in this department is followed by an account of some of the most important objects, including sculptured stones, ivories, wood-carvings, textiles, illuminated manuscripts and miniatures, copper, glass and ceramics.

Two Khans at Khân Tûmân.—In *Syria*, IV, 1923, pp. 134–139 (2 pls.), K. A. C. CRESWELL gives an account of two khans at Khân Tûmân, eleven miles from Aleppo. The structures here have been noted before, but confusion has arisen in attempting to date them, because it has been assumed that they belong to a single khan. As a matter of fact, there are two khans. The second is built against the south side of the first, and has an inscription dating it in 1062 H. (1652 A.D.) This date is confirmed by the architectural character of the structure, of which the plaited shafts at the sides of the windows are an especially characteristic feature. The other khan, which has a square courtyard surrounded by a plain vaulted hall of solid masonry, is dated by an inscription 635 H. (1237–8 A.D.)

The Sacro Catino at Genoa.—In *Ant. J.* IV, 1924, pp. 11–1 8 (2 pls.), Sir MAR-

TIN CONWAY gives a historical account of a famous relic in the cathedral at Genoa, the so-called Sacro Catino. It is a shallow six-sided bowl, once thought to have been made of a single emerald, but actually of green glass; and invested by tradition with various religious associations. It was taken from a mosque at Caesarea by Genoese soldiers of the First Crusade (1101 A.D.) For centuries it was jealously guarded in Genoa; but it was taken to Paris in the time of Napoleon and was fractured on its return, an accident which conclusively proved the material of the bowl. Access to it has continued to be difficult, but at the time of the Genoa Congress Mr. Lloyd George's secretary, Mr. Sylvester, secured permission to make new photographs which are published with Sir Martin's article. The bowl has been called Byzantine, but is unlike glass of demonstrable Byzantine date. It is probable that the bowl is of Hellenistic origin, a late example of glass made in the Egyptian tradition.

EGYPT

Egyptian Jewelry.—A catalogue of the Egyptian gold and silver jewelry in the collection of the New York Historical Society, by CAROLINE RANSOM WILLIAMS, is the initial volume of a complete catalogue of the Egyptian antiquities in the Museum of the Society. In a detailed and thoroughly documented introduction, Mrs. Williams reviews the references to jewelers and their art in Egyptian texts, enumerates the metals, stones, and other materials used by the Egyptian jewellers, and describes the different kinds of jewelry worn by the Egyptians, distinguishing between those which were intended for the use of the living, and those designed as ornaments for the dead. Special attention is given to the geographical sources of the metals used by the Egyptians, and to the metallurgical problems presented by an analysis of the alloys, natural or artificial, which are found in their work; to the technique of Egyptian cloisonné and granular ornament in gold, and to the production of gold wire. The catalogue comprises a description of 160 pieces in the collection of the Historical Society, classified as follows: various early pieces, scarabs, finger rings, earrings, late amulets, statuettes of gods, miscellaneous objects, the "Menes necklace and earrings." In an appendix is a list of the most important extant Egyptian jewels, with references to publications. The book is fully indexed. (The New York Historical Society, *Catalogue of the Egyptian Antiquities*, Numbers 1–160: *Gold and Silver Jewelry and Related Objects*. By CAROLINE RANSOM WILLIAMS. New York, 1924, New York Historical Society. xii, 281 pp.; 38 pls. 4to. $10.)

The Country of Negaou.—In *Syria*, IV, 1923, pp. 181–192, PIERRE MONTET discusses the Egyptian texts which mention a country called Negaou. He conjectures that this region, from which the Egyptians imported wood for their sacred boats and resin for use in embalming their dead, was in the vicinity of Byblos in Syria.

Egyptian and Coptic Embroidery.—A recent monograph by M. DIMAND, published by the Museum of the History of Civilization at Lund in Sweden, is devoted to the decorative motives of the wool embroidery of Egypt in the late antique and the Coptic periods. The introduction gives a list of the principal works on this subject, with concise indication of their scope and value, and reviews the historical facts necessary for an understanding of the embroideries: the influence of the Greeks and the Romans on ancient Egypt, the early Christian church, the Coptic church, the monastic system, and the commercial relations of Egypt. The first three chapters trace the evolution of ornament of garments, describe the technique of Egyptian embroideries (the chapter on this subject is contributed by V. SYLVAN), and discuss the representation of figures in the embroideries, and the relation of figures to ornament in Coptic art. The characteristic decorative motives of the art, classified as geometric and vegetable, are the subject of the longest chapter.

This is followed by a discussion of the mutual influences of these two classes of ornament, and by a chapter on the development of colored design. The monograph is fully indexed. (*Die Ornamentik der ägyptischen Wollwirkereien: Stilprobleme der spätantiken und koptischen Kunst*, von M. DIMAND. Hrsg. vom Kulturhistorischen Museum in Lund. Leipsic, 1924, Hinrichs. 14, 76 pp.; 18 pls. 4to. $2.88.)

BABYLONIA AND ASSYRIA

Egypt and Asia in Prehistoric Times.—In *J. Asiat.* CCII, 1923, pp. 117–159, J. DE MORGAN undertakes to prove that all the civilizations of the ancient Near East have a single root, and that the cradle of this common primitive culture is to be sought in Central Asia.

The Babylonian Antediluvian Kings.—At last the list of the ten antediluvian kings has been completed through the publication by S. LANGDON in *J.R.A.S.* 1923, pp. 251–259, of a tablet in the Ashmolean collection. From this the prototype of the list of Berossus may be reconstructed as follows:

Babylonian		Sars	Berossus	Sars	
1. Làl-úr-alim	of Šubari	18 ⅔	1. Αλωρος	18 ⅔.	(10)
2. [ ]-làl-gar	" "	20	5. [Με]λαγαρος	20	(18)
3. [ ]-ki-du-un-nu	of Larsa	20	4. [Αμμε]νων (?)	12	
4. ?	" "	6	2. Αλαπαρος (?)	3	
5. Dumu-zi, *sib*,	of Badtibira	8	6. Δαως, ποιμήν	10	
6. [ ]-en-lu-an-na	" "	6	3. [Αμ]ηλων	15	(13)
7. [ ]-sib-zi-an-na	of Larak	10	8. Σεμψινος	10	
8. En-me-dur-an-ki	of Sippar	20	7. Ενεδωραγχος	20	(18)
9. Aratta-gi	of Šuruppak	8	Αρδαγης		
son of Ubur-Tutu			9. Οπαρτης	8	
10. Zi-ud-sud-du	" "	10	10. Ξισουθρος	10	(18)
		126 ⅔.		126 ⅔.	(120)

See also W. F. ALBRIGHT in *J.A.O.S.* XLIII, 1923, pp. 323–329.

The Invasion of Cappadocia by Sargon King of Akkad.—The German excavations at Tell el-Amarna in 1913 brought to light a cuneiform tablet that described the campaign of a "war-lord" against an unknown district. The significance of this was not understood until Schroeder discovered a duplicate among the tablets found at Asshur. Then it appeared that the king in question was the famous Sargon of Akkad (ca. 2800 B.C.) and that the tablet referred to an expedition against the Hittite empire. A thorough study of the document has been made by E. WEIDNER in *Boghazköi-Studien*, VI, 1922, "Der Zug Sargons von Akkad nach Kleinasien." Criticisms of this translation are given by P. DHORME in *R. Bibl.* XXXIII, 1924, pp. 19–32; and by W. F. ALBRIGHT in *J. Soc. Or. Res.* VII, 1923, pp. 1–20.

A New Date for the Fall of Nineveh.—Mr. C. J. GADD of the British Museum has recently discovered and published a tablet containing a Babylonian chronicle between the tenth and the seventeenth years of Nabopolassar (616–609 B.C.). It narrates a series of campaigns of the allied Babylonians, Medes and Scythians against Assyria, ending with the fall of Nineveh in 612, instead of 606 as has hitherto been assumed. It shows further that this event did not bring the complete destruction of the Assyrian empire; but that Ashur-uballit rallied the relics of his armies at Harran, and continued to reign for two years, until the capture of Harran in 610. It appears also that Egypt was the ally of Assyria against

Babylonia, and not the enemy, as has hitherto been supposed. Whether the date of the battle of Carchemish must be placed earlier than 605, the commonly accepted year, is doubtful, since the tablet unfortunately breaks off just before that important event. (A. C. WELCH, *Exp. T.* XXXV. 1924, pp. 170–172; P. DHORME, *R. Bibl.* XXXIII, 1924, pp. 218–234.)

SYRIA AND PALESTINE

Six New Tell el-Amarna Letters.—In spite of the efforts of Knudtzon to make his edition of the Amarna Letters complete, six new letters have been found by F. THUREAU-DANGIN and published in *R. Ass.* XIX, 1922, pp. 102 sq. One is from the well-known Rib-Addi of Gebal. Another is from Shuwardata, whom we know already as a foe of Arta-Ḫepa, king of Jerusalem. Here both are united against the invading *Sa-Gaz*, or Ḫabiru, the "Hebrews" in the wider sense of the word. In *R. Bibl.* XXXIII, 1924, pp. 5–19, P. DHORME discusses these tablets, their bearing on the Ḫabiru problem, and their linguistic yield.

Two Syro-Hittite Statuettes.—In *Syria*, IV, 1923, pp. 134–140 (2 pls.), LOUIS SPELEERS publishes two statuettes in the collection of Dr. Jousset de Bellesme. They were found in the course of constructions in the vicinity of Ḥoms, in 1893. The larger one is of silver, and represents, in a rigid and geometric form, a man wearing a high casque or helmet. The smaller one, which is a bronze, is very similar to the other. The arms of both seem to have been bent, as if to hold sceptres or weapons. Since the subject can not with certainty be identified as any of the Hittite warrior-gods, it is safest to regard these simply as figures of warriors. But the style of the statuettes shows clearly that they are of Syro-Hittite origin, and they illustrate the important historical rôle of the Hittites in Northern Syria from the fifteenth to the thirteenth century B.C.

Intaglios in the Collection of Dr. Jousset de Bellesme.—In *Syria*, IV, 1923, LOUIS SPELEERS publishes a catalogue of 42 intaglio stones in the possession of Dr. Jousset de Bellesme, who bought them of dealers in the region of Ḥoms-Hamath in 1893. They represent many periods of Oriental art: Sumero-Accadian (1), Assyrian (2), Neo-Babylonian (3–7), Sassanid (8–40, except No. 19, which seems to be Cypriote of the twelfth or thirteenth century B.C.), and modern (41–42).

The Chronological Relation of Ezra and Nehemiah.—In *R. Bibl.* XXXII, 1923, pp. 481–494; XXXIII, 1924, pp. 33–64, A. VAN HOONACKER undertakes an elaborate refutation of the thesis of F. X. KUGLER in *Von Moses bis Paulus*, 1922, that the traditional view is correct that Ezra preceded Nehemiah. On the contrary, he shows that all existing documentary evidence supports the view that Ezra followed Nehemiah, and flourished under Artaxerxes II, rather than under Artaxerxes I.

Objects Found at Byblos.—In *Syria*, III, 1922, pp. 273–290 (9 pls.; 7 figs.), CHARLES VIROLLEAUD gives a detailed description of the hypogaeum and sarcophagus discovered by M. Montet at Djebeil (Byblos), and of the principal objects discovered in the tomb. *Ibid.*, pp. 291–295 (fig.) EDOUARD NAVILLE discusses briefly the perfume vase of obsidian found in the sarcophagus. Such vases are not common in Egypt; but one, also a perfume vase, was found in a tomb near the pyramid of Dahchour. In the same tomb were scarabs with the name of Amenemhait III, whose name also appears on a fragment of gold in the Byblos tomb. Three obsidian vases were found by Petrie in a tomb at Lahun, also of the time of Amenemhait III. It is proved that the relations between Egypt and Syria which existed in the early dynastic periods continued as late as the XIIth dynasty. *Ibid.*, pp. 295–297, M. CLERMONT-GANNEAU points out that the conquest of Nubia under this dynasty made deposits of obsidian accessible to the Egyptians. *Ibid.*,

pp. 298–306 (2 figs.) Edmond Pottier contributes some observations on other objects found in the tomb. These include a fragment of a silver vase with spiral ornament, of Mycenaean style, and similar to objects in Shaft Grave IV at Mycenae; a vase of tea-pot shape, probably also Mycenaean; a cutlass of hook shape, a pair of silver sandals, and some miscellaneous objects.

The Work of Charles Clermont-Ganneau.—In *Syria*, IV, 1923, pp. 140–173, René Dussaud publishes an extended article on the works and archaeological discoveries of the late Charles Clermont-Ganneau, accompanied by full bibliographical references.

ASIA MINOR

Homeric Ilios.—In his book '*Alteuropa*' (1919), C. Schuchhardt returned to his early opinion that the second city at Hissarlik (2500–2000 B.C.) was the Homeric Ilios. This view W. Dörpfeld discusses in *Ath. Mitt.* XVII, 1922, pp. 110–116, expressing surprise that Schuchhardt still holds to the view of Schliemann, and pointing out weaknesses in his arguments. Schuchhardt publishes a rejoinder (*ibid.*, pp. 116–119) in which he maintains his position. Dörpfeld replies (*ibid.*, pp. 119–122). The debate is concluded by a final word from Schuchhardt (*ibid.*, pp. 122–123), in which he concedes that Dörpfeld was right in identifying the sixth city with the Ilios of Priam. Schuchhardt is convinced by the statements on the clay tablets from Boghazkoï, as read by E. Forrer (*Mitt. Or. Ges.*, No. 63, 1924), according to which an Achaean king Atarisias, that is, Atreus, father of Agamemnon, led expeditions against Caria and Cyprus about 1250–1225 B.C. Schuchhardt still maintains that there are 'early Mycenaean' touches in the Iliad, *e.g.*, the inlaying of the shield of Achilles with colored metals reminds us of the inlaid daggers found in the shaft graves at Mycenae. He suggests that older lays told of the destruction of the second city at Hissarlik, and that an echo of this is to be found in the tradition of the successful expedition of Heracles against Laomedon.—Schuchhardt seems to be guilty of oscitancy in finding a reference to Bellerophon in the Boghazkoï tablets. In Forrer's article (p. 15) it is a refractory Hittite prince who is exiled 'over seas', that is, to Greece, and not an Achaean prince sent from Greece to Lycia.

The Roman Theatre at Smyrna.—In *Ath. Mitt.* XLVII, 1922, pp. 8–24 (4 pls.), O. Berg and O. Walter publish drawings of plan, elevations and a few architectural features of the Roman theatre at Smyrna, and a description based on observations made in 1917. The present structure is not earlier than the second century A.D. In size and general arrangement of the stage, and in seating capacity, it is like the theatre at Ephesus. Of particular interest is the arch over the entrance to the *θέατρον*: the stones of the vertical courses above the cornice are rabbeted on the ends as well as on the horizontal faces to prevent slipping while the arch was being constructed.

Drawings of Places in Pamphilia and Pisidia.—The tinted pencil drawings made by the architect H. Eggert on a journey through southwestern Asia Minor in company with S. Hirschfeld in 1874, have since his death in 1920 been deposited with the Berlin Museums and are there available for study, together with his diaries of the trip. Although these sketches are less carefully worked out than the illustrations by Niemann in Lanckoronski's *Städte Pamphiliens und Pisidiens*, they are a very valuable supplement to that work, sometimes because of the less ruinous condition of the buildings they depict, sometimes because they cover different ground. This is true of the architrave relief of Artemis at Perge, of Side, Kremna, the house of a Greek gentleman at Adalia, the basilica at Sagalessus, the rock tombs of Syrt, and the Eurymedon bridge at Selge, to mention some of the more conspicuous instances. (M. Schede, *Arch. Anz.* 1922, cols. 13–14.)

GREECE

ARCHITECTURE

The Temple of Zeus at Olympia.—In *M. Am. Acad. Rome*, IV, 1924, pp. 153–168 (5 pls.), JAMES K. SMITH publishes new drawings of the restored plan, front and side elevations, and transverse section of the temple of Zeus at Olympia, accompanied by a text describing the architectural details of the temple. The study is based on original observations and measurements on the site.

The Euthynteria of the Parthenon.—The euthynteria of the Parthenon on the east end and the two long sides of the temple was not meant to be visible: it is constructed of not altogether regular poros blocks. On the west end, however, there was a marble euthynteria, the poros course under it was worked true on its outer face for a distance of 14 cm. from its upper edge, and there is evidence of a seventh service step in front of the entrance, laid against the outer face of the marble euthynteria. Hence on the west end the euthynteria was visible after the Parthenon was completed (K. LEHMANN-HARTLEBEN, *Ath. Mitt.* XLVII, 1922, pp. 124–128; fig. See B. H. HILL, *A.J.A.* 1912, pp. 535 ff., for details of some of the evidence).

The Corinthian Capital.—In *Art Bulletin*, IV, 1924, pp. 1–7 (3 pls.), H. L. EBELING renews the discussion of the origin of the Corinthian capital, with special reference to the single capital of that order in the temple at Bassae. The best evidence for the form of this capital, which represents an initial stage in the development of the order, is in the original drawings of Haller and Cockerell. The architect, having designed the Ionic half-columns of the temple with diagonal volutes, proceeded to construct a new type of capital which should be in harmony with these, and should present the same appearance on all four sides. It was perhaps the Doric capital which suggested the heavy abacus; the concave sides of the abacus are consistent with the diagonal volutes which support it. Having dispensed with the bolster of the Ionic capital, the designer chose a form for the core which may have been suggested by the bell-capital of the Egyptians, or by a Greek type found at Delphi; or may, again, have been derived from the Ionic columns which have special ornament on the neck. At the base of the capital was a single row of simple leaves. Above these, beneath the volutes, and rising to the same height as that of the spirals on the sides of the capital, were acanthus leaves. Between the volutes and the spirals leaves of the shape of iris leaves were painted on the capital. The somewhat too varied elements of design in this early Corinthian capital are contrasted with the harmonious composition of the capital of the Tholos at Epidaurus; while that of the monument of Lysicrates is characterized as a transitional form.

The Olympieum at Athens.—The Olympieum at Athens, begun by the Peisistratids, was planned as an Ionic peripteral temple comparable with the Artemisium at Ephesus and the temple of Hera at Samos, and of the same plan and general dimensions as the later temple actually brought to completion in the time of Hadrian. The early 'Deucalion wall' of Penrose proves to be the foundation of the colonnade of a still earlier temple measuring 30.50 m. by (probably) about 60 m. This earlier structure was razed by the Peisistratids in preparation for their new temple (G. Welter, *Ath. Mitt.* XLVII, 1922, pp. 61–71; 41 pls., fig. The second part of this study will be published in the next volume).

Towers on the Greek Islands.—In *Ann. Arch. Anth.* XI, 1924, pp. 31–36, H. A. ORMOND has some notes on towers of the type illustrated by the tower in Naxos described by Mr. Droop, *ibid.* X, 1923, pp. 41 ff. These were not only temporary refuges in time of danger: in some cases they served as actual strongholds. Probably they also were used as beacons to warn the population of an approaching raid. Mr. Ormond makes the suggestion that the *πυρτολίοντες*

whom Odysseus saw in his transitory glimpse of Ithaca after the visit to Aeolus were kindling such a beacon of warning at the approach of the still unrecognized ship. A summary of the epigraphic evidence on the use of the towers is given.

SCULPTURE

The "Blue Beard" of the Acropolis.—The pediment figure on the Acropolis to which the so-called Blue Beard head belongs is given a new interpretation by E. BUSCHOR, *Ath. Mitt.* XLVII, 1922, pp. 53–60 (pl.; fig.). The monster is the old sea daemon Proteus; the archaic artist gave him three bodies to show that Proteus could assume different forms (Od. IV, 456–458; Soph. *Frg.* 154, Nauck). In the three left hands are held representations of fire, of waves, and of a bird, respectively. These attributes, together with the serpent bodies, indicated that the daemon could transform himself at will into a snake, or fire, or water, or air. In the reconstruction of the figure Buschor proposes a slightly different position of the Blue Beard head, somewhat like that in Brunn-Bruckmann, 456, but presenting more of a front view to the beholder. The sculptor gave a different treatment to each of the three heads. The innermost one was in full profile, the second a little less so, but still meant to be seen from the side. These two are to be thought of as looking with interest at the Typhon struggle before them. But Blue Beard utterly ignores this; he faces the spectator squarely, as though saying: "Behold me, the Old One of the Sea." The evidence for the proposed reconstruction is a correspondence discovered after the removal of the plaster neck, between the part of the head back of the left ear, and the broken edge of the neck below. (*Ibid.*, pp. 106–109; pl.; fig.).

The So-called Erechtheum Pediment.—In *Ath. Mitt.* XLVII, 1922, pp. 81–91 (pl.), E. BUSCHOR restores the early gable group from the Acropolis, supposed to represent a procession passing by a temple of Athena (Wiegand, *Porosarchitektur*, p. 197; Heberdey, *Porosskulptur*, p. 16), as a spring house in the sacred grove of Thymbrian Apollo at Troy, with Polyxena at the spring, Troilus waiting at the left, and Achilles in ambush at the right.

Archaic Sculptures of the Acropolis.—In *Ath. Mitt.* XLVII, 1922, pp. 92–105 (3 pls.), E. BUSCHOR discusses the fragmentary archaic sculptural groups containing lions, found on the Acropolis, and makes interesting conjectures as to the structures to which they belonged. For example, he assigns the earliest group (Schrader, p. 10 ff.) to the frieze of a temple with wooden entablature, possibly a seventh century structure standing where later the Old Temple was erected; and he thinks that the famous lioness of poros (Heberdey, p. 77; Wiegand, p. 217) belonged to a gable of an early sixth century temple of Athena on the site of the Parthenon, perhaps the original Hecatompedon.

Cleobis and Biton.—In *C. R. Acad. Insc.* 1924, pp. 149–154, T. HOMOLLE, who has recently subjected to a new scrutiny the bases of the statues of Cleobis and Biton at Delphi, reviews the conjectures of Keramopoullos and von Premerstein on the inscriptions, and gives grounds for correcting and supplementing their readings. He would restore the text as follows:

A: Κλεοβις και Βιτων των μητερα
σταδιος [τετροϙοντα]?
B: πεντ]ε αγαγον τοι δυγοι [ηυποδυντες]?
. . . . μεδες ἐποιεε ἡαργειος.

The Frieze of the Nike Temple.—CARL BLÜMEL is the author of a new study of the frieze of the temple of Athena Nike in Athens. A brief discussion of the arrangement of the slabs of the frieze, on which he has found no new evidence, is followed by a stylistic analysis of the extant parts. The frieze is not unified, but exhibits the work of two distinct periods and of at least three, perhaps four, sculp-

tors. The blocks *b*, *c* of the east side are closely associated with the Theseum frieze, but are earlier. Blocks *o* and *e* of the south side are to be attributed to the same sculptor as these. Blocks *a*, *l*, *m*, *n*, *f*, *h*, belong wholly to the realm of Attic-Ionic art, the same that is reflected in the sculptures of the balustrade. An artist of strongly decorative instinct is the author of *i* and *k* on the west side. The composition of *g* is inferior and is borrowed from *o* and *a*. There is no stylistic connection between the frieze and the group of architectural sculptures which includes the frieze and pediments of the Parthenon and the frieze and korae of the Erechtheum. The blocks *o* and *e* belong to the earliest group, commemorating the battles with the Persians. The later series, showing combats of Greeks with Greeks, allude to the recent events of the Peloponnesian War. The construction of the temple was begun in the Phidian period, between 450 and 440 B.C., and at least four of the frieze blocks—*b*, *c*, *e*, and *o*—were ordered at this time. Construction was interrupted, probably by the building of the Propylaea, and the work, as is shown by the plastic style of the later parts of the frieze, and by the lack of reference in these to the Persians, was continued in the years after the first part of the Peloponnesian War, presumably about 420 B.C. (*Der Fries des Tempels der Athena Nike.* Von CARL BLÜMEL. Berlin, 1923, Josef Altmann. 41 pp.; 7 pls. 4to.)

Two Currents in Sculpture of the Fifth Century.—CARL BLÜMEL has extended his study of the architectural sculpture of the fifth century beyond the scope of his dissertation on the frieze of the Nike temple, and has published a contribution to general criticism of the sculpture of this period, entitled *Zwei Strömungen in der attischen Kunst des V. Jahrhunderts.* The architectural conditions of sculpture resulted in a marked cleavage of styles. In the deep frames of Doric metopes and pediments, the tendency was to the creation of compositions in high relief, symmetrically composed and of isolated figures, a plastic and architectonic style. The frieze of Ionic buildings, on the other hand, demanded low relief and a style which had relatively little reference to the architectural frame, distinctly picturesque in method and effect. One or the other of these styles may be observed in all the Attic sculpture of the second half of the fifth century. The plastic style is exemplified in the friezes of the Theseum—the east frieze recalls a pediment composition, the west a series of metopes—, the fragments from the Ionic temple on the Ilissus, some slabs of the Nike temple frieze, the accessory reliefs of the Athena Parthenos and the Zeus of Phidias, the base of the Nemesis at Rhamnus and (in the fourth century) the base at Mantinea. To the group exemplifying the picturesque style and method belong the Parthenon frieze and pediments, the later slabs of the Nike temple frieze, and the frieze of the Erechtheum. Mr. Blümel discusses in some detail the difference of approach to the two types of work—the more analytical method of the plastic style, the more synthetic of the picturesque, which requires a more direct study of models. The plastic method is more generally found in the treatment of somewhat hackneyed subjects of combat, while contemporary or freshly conceived subjects, such as those of the Parthenon frieze and the Erechtheum frieze, are treated in the new style. The paper is supplemented by a discussion of a marble head of Athena, now in private possession in Berlin, which on several stylistic grounds is attributed to a metope of the Parthenon (East IV) representing Athena and Enceladus. (*Zwei Strömungen in der attischen Kunst des V. Jahrhunderts.* Von CARL BLÜMEL. Berlin, 1924, Josef Altmann. 38 pp.; 4 pls. 4to.).

The Colossal Statue of a Goddess from Ariccia.—The colossal standing statue of a goddess which was found in a vineyard not far from Ariccia, in March, 1919, and published by G. Lugli in *Not. Scav.* for 1921, is again published and discussed at some length by W. AMELUNG in *Jb. Arch.* I., XXXVII, 1922, pp. 112–137 (21 figs.). It is of Pentelic marble and was made, probably at Athens, in the time of

Trajan, from a bronze original of the middle of the fifth century, a little earlier than the Athena Parthenos. There are numerous replicas, both of the heavily draped figure and of the head, the best-known being the head of the Hera Farnese at Naples. The goddess wears no ornament except a plain band in the hair above the forehead, and no attribute is preserved, although the long object which once probably leaned against the left side may have been a torch. The hair hanging down the back in a heavy plait indicates a maiden, not a matron, and the nearness of Lake Nemi, with its cult of Diana, to the shrine in which the statue stood in Italy, suggests that it represented Artemis or Hecate. The style, in which it resembles the Artemis of the Selinus metope, the older metopes of the Parthenon, and the Delphian charioteer, is that of the school of Critias and Nesiotes.

An Argive Offering to Hermes.—The interpretation of the votive offering to Hermes found by Vollgraff in his excavations at Argos, and published by him in *B.C.H.* XLIV, 1920, pp. 222 ff., is discussed by E. Pfuhl, in *Ath. Mitt.* XLVII, 1922, pp. 78–80. The object in the hand of the maiden cannot be a phallos, as Vollgraff regarded it, nor can the pillar be a herm. This pillar was meant to be beside Hermes—his left arm is resting on it—but the low relief and the style of the sculptor constrained him to make the pillar appear as if in front. The work, while one of the best of its group, gives the impression of provincial art when compared with Attic reliefs of the fourth century, and points to no great Argive tradition of sculpture at this period.

COINS

The Mint of Sunium.—In *J. Arch. Num.* XVII, 1915 (published 1922), pp. 53–70 (pl.; 9 figs.), is a discussion by the late J. N. Svoronos of evidence connecting the sanctuaries at Sunium with the minting of coins from the silver of Laurium. An artificial pit in the temenos of Apollo at Sunium seems to have served in primitive times as a depot of metal and a mint, just as a tower in the sanctuary of Poseidon served these purposes in later times. Mr. Svoronos associates this early mint with the cult of the hero Stephanephoros, and interprets the beautiful relief of transitional date, found some years ago at Sunium, as a votive relief representing this hero as placing a garland on his own head. In the second part of his article Mr. Svoronos identifies a series of coins struck by insurgent miners in the revolt of 102–100 B.C.

The Coins of Lampsacus.—In *A. J. Num.* LIII, 1924, part 3 (77 pp., 17 figs., 10 pls.), is a monograph by Agnes Baldwin on the gold staters and the silver and bronze coinage of Lampsacus. An introductory chapter leaves open the question whether it is better to attribute certain electrum coins to Macedonia, as Svoronos does, or to explain them as Lampsacene by means of the Ionian Revolt Theory. The gold staters were issued during less than a century (c. 390–330 B.C.). An intensive study of details of the reverses, sizes of flans and types, together with styles of obverses has furnished the clue to the order of the issues and an analysis of the Asia Minor and Avola hoards entirely bears out these conclusions. There was no interference as to choice of metal, weight, or type and an inscription (*I.G.* VII, 2418, 11, 10, 11) shows that this coinage was of considerable importance as a circulating medium. For evidence of cult it is not, as a whole, of especial value because there are many copied or inspired types. The silver coinage begins ca. 500 B.C. and at first shows half-Pegasus and Janiform head types. Apparently the mint was almost quiescent between 470 and 400, but the fourth century witnesses a fairly abundant and continuous series of native types until ca. 330 B.C. Next are found posthumous Alexandrine types bearing only occasionally the Lampsacene mint-mark (regal) and Alexandrine types with the personal emblem of Lysimachus (regal). Before the middle of the third century Lampsacus began the issue of Alexandrine coinage bearing invariably the badge of the city (autono-

mous). A series of Priapus tetradrachms extends over a period of some ten decades after 188 B.C. Bronze coins were issued occasionally from the fourth century B.C. to the reign of Gallienus.

Antonomous Coinage of Smyrna.—A paper (or series of papers) on the autonomous coinage of Smyrna is in fulfilment of a promise made by the author in 1914 in an article printed in the *Num. Chron.* of that year (p. 273). Old Smyrna had been destroyed by Alyattes. New Smyrna was probably refounded by Antigonus about 304–302 B.C. The present review of the coinage of the new city extends from that date to the initiation of the imperial coinage under Augustus. It is naturally divided into three periods by two breaks in the continuity of the coinage, one about the time of the battle of Magnesia, the other during the reorganization of the province of Asia after the Mithradatic war. Each of the three periods is treated in subdivisions. In the present issue the history is carried only to about 190 B.C. (J. G. MILNE, *Num. Chron.*, 1923, pp. 1–30; 2 pls.).

New Bronze of Syracuse.—A previously unpublished small bronze coin of Syracuse with types of Tyndaris suggests a connection in history between the two cities to A. H. LLOYD in *Num. Chron.*, 1923, pp. 150–2 (pl.).

Coinage and Diplomacy of Philip II of Macedon.—The history, diplomatic and economic, of Philip II of Macedon in the earlier years of his reign is illuminated by a study of the coinage of the time from the pen of ALLEN B. WEST in *Num. Chron.*, 1923, pp. 169–210.

GENERAL AND MISCELLANEOUS

The Bronze Disc from Tegea.—The decorated bronze disc found at Tegea and published by Dugas in *B.C.H.* XLVI, 1921, is again figured and further discussed by V. MÜLLER in *Arch. Anz.* 1922, cols. 14–18(fig.). The animal of which only a portion is preserved is bovine and the figure standing on it is a goddess, naked but for a wide girdle and with arms raised, holding up a poppy seed cup. The style is pure geometric. It is to be assigned to Boeotia and to the seventh century B.C. and is an interesting proof of the extent to which, in the time of Hesiod, the Greek conceptions of the native divinities were influenced by Oriental, especially Hittite, ideas.

The Topography of Phlius.—In *Ann. Arch. Anth.* XI, 1924, pp. 37–47, (map), A. G. RUSSELL discusses the topography of Phlius and the Phliasian plain, and mentions the visible ancient monuments on the site. His topographical survey has special reference to Xenophon's account of the attack of the Arcadians and Eleans on Phlius in the campaign of 369–368 B.C. (*Hellenica*, VII, 2, 5–15.)

The Heracles Myth.—The scope of *Herakles*, by BERNHARD SCHWEITZER, is somewhat more extended than the title implies, but is indicated more fully by the subtitle, Essays on the History of Greek Religion and Myth. To a considerable extent it is also a study in comparative mythology. Taking as his starting-point a geometric sherd from the Argive Heraeum, on which a monster with two heads, four arms, and four legs is associated with the double axe, the author traces in detail the survival of the double axe in the religion and myth of post-Minoan times. The significance of the many-limbed monster, probably embodying a primitive conception of the powers of wind and storm, is discussed in the following chapter; and in the next, the relation of Poseidon, who seems to have been originally a wind-god, to the twins called the Aktoryones, who were slain by Heracles, and who constitute a variant of the many-limbed monster. The following chapters include an analysis of the tradition of the twelve labors of Heracles, a discussion of the archaeology of the tradition of the hero, and an exposition of the Heracles "Märchen," under the following heads: the tale of the fisher's son, the tale of the war with giants and dragons, Alastir and Cornac. Heracles, the author concludes, is a figure of the same character as Indra and Thor, Rama and Rustem, Siegfried

and Beowulf, a slayer of monsters, a characteristic creation of Aryan civilization. The monsters he slew are derived from pre-Dorian conceptions of sinister forces of nature. Heracles himself is "the genius of the Dorian element in the 'mythical' culture of the Greeks. His wide-spread cults are a thank-offering for a destiny already experienced, an expression of hope for a destiny anticipated; his death and his entrance into Olympus are the bold self-apotheosis of a people which has felt a breath of its divinity even in the creative impulse of its sorrow-torn existence." (*Herakles: Aufsätze zur griechischen Religions- und Sagengeschichte*, von Bernhard Schweitzer. Tübingen, 1922, J. C. B. Mohr. viii, 247 pp.; 12 pls.; 38 figs. 8vo.)

Boeotian and Anatolian Cults.—In *Ann. Arch. Anth.* XI, 1924, pp. 3–24, W. R. Halliday discusses the cult of Hector at Thebes and that of Achilles at Tanagra. The Theban cult was not due to an Asiatic enthusiasm on the part of Medizing Boeotians; and Plutarch's explanation of the cult at Tanagra (Quaest. Gr. 37) is the product of "muddled antiquarian erudition." It is probable that these rites were brought from the Troad to Boeotia at the time when Boeotians were colonizing the Pontic regions. Further transference of Asiatic myth and cult to Boeotia is indicated by the traditions of Niobe and of the Amazons.

The Pythaïs.—Axel Boëthius is the author of an exhaustive study of the Pythaïs, a religious festival which especially associated Athens with Delphi. His conclusions are based for the most part on epigraphic evidence discovered at Delphi. The time of the festival was at the end of the Attic official year, perhaps in the month Thargelion. For some time its occurrence was determined by the appearance of lightning over Harma, proverbially unusual. The delegation to Delphi for the ceremonies of the Pythaïs was conducted as a solemn πομπή, following the road by Oenoë to Thebes and thence to Delphi. Connected with the offering of first fruits to the god were rites called the Pyrphoria and the Tripodophoria. The group of Pythaists was composed, in part, at least, of members of noble Athenian families, and was accompanied by theori. We know that in the fourth century boys of about ten years also accompanied the procession as a chorus. The festival lapsed in the third century, but was revived in 138–7 B.C. The tradition, however, was so completely broken before this time that the details of the ceremonies, from this time on, are not to be regarded as genuine survivals. There is copious evidence on the several officers, choruses, troops of cavalry, etc., who made up the procession at this time. The chorus approached the Delphic altar singing the paean of Limenius (*Fouilles*. 138), and at the time of the sacrifice they sang the hymn preserved in *Fouilles* 137. After a period of recurrence at intervals of ten years, the Pythaïs was celebrated after 106–5 at intervals of eight years. But the Sullan and Civil Wars again interrupted the tradition, and the Athenian rites at Delphi restored in the imperial period no longer went under the name of the Pythaïs. The chief epigraphic and literary testimonia on the festival are collected in an appendix. [*Die Pythaïs: Studien zur Geschichte der Verbindungen zwischen Athen und Delphi*. Von Axel Boëthius. Uppsala, 1918, Almqvist och Wiksell's Boktryckeri, iv, 172 pp. 8vo.]

The Argive Calendar.—A renewed examination of the literary and epigraphic evidence on the Argive calendar and on the dates of the principal religious festivals of Argos is presented in a recent dissertation by Axel Boëthius. The Nemean festival was celebrated every second year (in the years B.C. represented by the odd numbers) and at a date which must have been well after the harvest, and, in accordance with an inference from *I.G.* II, 181, before the eleventh of the Attic month Hekatombaion. The date fell in the Argive month Panamos, and a review of the evidence on the Argive months shows that Panamos was equivalent to the Attic Skirophorion (June-July). Hence the festival took place in early July. The festival of Hera was celebrated every second year in the middle or the latter

part of June, again in the years B.C. denoted by odd numbers. In the imperial period the Sebasteia alternated with the Heraea; that is, each festival occurred once in four years. The final chapter of Dr. Boëthius' dissertation reviews the course of the Argive year and its religious observances. (*Der argivische Kalender*, untersucht von AXEL BOËTHIUS. (Uppsala Universitets Årsskrift, 1922, Filosofi, språkvetenskap och historiska vetenskaper 1.) Uppsala, 1922, A.-B. Akademiska Bokhandeln. 76 pp. 8vo. 4 kronor.)

The Soteria of Delphi.—In *R. Ét. Anc.* XXVI, 1924, pp. 97–111, P. ROUSSEL, examining the evidence on the chronology of the Delphic festival which commemorated the expulsion of the Gauls, formulates the hypothesis that in the archonship of Polyeuctus at Athens, which he dates 243–242 B.C., this festival, known as the Soteria, was completely transformed by the Aetolians, and became a penteteric celebration. Lists in which the names of the Aetolian *agonothetae* of the festival appear are later than this date; other lists are to be connected with the earlier Amphictyonic festival, which was probably annual. The establishment of the penteteric celebration is to be associated with the Aetolian preponderance in Greek affairs, about 250–240 B.C.

Attic Ostracism.—The 43 Attic ostraca, found in 1910 just outside the Dipylon Gate, and published together with six already known, by A. Brueckner (*Ath. Mitt.* XL, 1915, pp. 1 ff.), are discussed by A. KOERTE in *Ath. Mitt.* XLVII, 1922, pp. 1–7. The newly found sherds were all used at the same ostracism. Since at least 24 bear the name of Cleippides, son of Deinias, of Acharnae, while only 11 were against Thucydides, Cimon's successor as leader of the aristocrats, Brueckner dated the ostracism between the year of Cimon's death, 449 B.C., and 443, the year in which Thucydides was ostracized, and argued that Cleippides must have been the immediate predecessor of Pericles in the leadership of the democratic party, and that this ostracism was a trial of strength between Cleippides and Thucydides, in which the latter was more successful than in 443. Koerte points out the insignificance of Cleippides in the historians (Thuc. III, 18, 3;28, 1. Diod. XII, 55, 5), and the omission of his name from the list of political leaders in Arist. *Ath. Pol.* 28, 2. He argues that the method of counting votes at an ostracism (Plut. *Aristeides*, 7, 5) explains why the name of Cleippides is found on more of the newly found sherds than that of Thucydides, and assigns them to the ostracism of 443. He adds some comments on the importance of the epigraphical features of the ostraca, the shape of lambda, the use of H and Q, and the occurrence of the three-stroke sigma on No. 44. He also suggests that since the name of the father of the candidate for ostracism is written much more frequently than that of his deme, it appears that the attempt of Cleisthenes to bring into use a more democratic form of nomenclature (Arist. *Ath. Pol.* 21, 4) had been by no means successful.

ITALY

ARCHITECTURE

Entasis of Roman Columns.—A study of the problem of entasis in Roman architecture is published by GORHAM P. STEVENS in *M. Am. Acad. Rome*, IV, 1924, pp. 121–152 (pl.; 28 figs.). Brief remarks on Greek and Roman entasis are followed by a list of the eight Roman columns, ranging in date from 2 B.C. to 312 A.D., on which the author's conclusions are based, and by a description of the practical methods used in the actual measurement of the columns, as well as a statement of the possible errors for which allowance must be made. The conic, the vertical projection of a helix, and the conchoid of Nicomedes are described as the curves "which best fulfil the peculiar conditions necessary for the entasis of columns." The mathematical methods of testing columns for these curves are described and illustrated; and the results obtained by Mr. Stevens from the eight columns which

he has tested are tabulated and illustrated by diagrams. "The results show a great variation in the general proportions of the columns and also in their entases. . . . Study of the table and its accompanying figures show that the Romans employed at least the parabola, hyperbola, and conchoid for their entases. . . . The cigar shaped column seems to come into fashion about the time of Hadrian. . . . The contraction of the shaft is on the whole greater in the early periods than in the late. . . . The use of the conic for entasis shows Greek influence." In the final pages of his study Mr. Stevens gives practical directions for laying out Roman entases similar to the examples measured.

The Villa of Hadrian.—A group of buildings in the Villa of Hadrian at Tivoli, adjoining the southern colonnade of the Poecile to the south of its east end, and occupying a position between the Poecile and the small Thermae, is the subject of drawings and detailed description by James Chillman, Jr., published in *M. Am. Acad. Rome*, IV, 1924, pp. 103–120 (7 pls.). The group has been known as the Aedicula since the time of Piranesi, because of an assumption that its central hall contained a shrine. Excavations, however, have shown that no shrine existed here, and Mr. Chillman gives the structure the descriptive name of "the Casino of the Semicircular Arcades." As restored by Mr. Chillman, the building includes a rectangular fountain basin adjoining the Poicile, flanked by two colonnades which serve as passages to the central hall of the casino; the central hall, rectangular in plan, with antechambers opening to east and west from its four corners; semicircular gardens to the west, south, and east of the central hall, each enclosed by a semicircular arcade, and beyond the arcade to the east a series of symmetrically arranged rooms, the axis of the principal room being a continuation of the shorter axis of the casino. It is conjectured that the largest of the eastern rooms was a picture gallery.

The Arch of Constantine.—The late Professor Frothingham argued that the Arch of Constantine, in its original form, dates from the reign of Domitian (*A.J.A.* XVI, 1912, pp. 368 ff.; XVII, 1913, pp. 487 ff.; XIX, 1915, pp. 1 ff., 367 ff.). In *M. Am. Acad. Rome*, IV, 1924, pp. 169–180 (2 pls.), Alice Walton examines the architectural evidence once more and concludes that while the original arch may be as early as the third century, it cannot be so early as the Flavian era. She summarizes her argument as follows: "The main facts which offer effective argument against the Flavian theory are in brief these: the medallions are placed too high and ineffectively in uneven masonry; the pedestals under the columns form an integral part of the arch as first built, while the entablature of the columns crudely imitates in design the main cornice; both the main cornice and the impost moulding of the central arch are cut in various lengths which are joined so as to obliterate the patterns; the end of a fine cornice block was recut in the crude style to form the southwest corner; the reliefs under the main arch could not have been set after the courses of masonry which slightly overlap them."

The Column of Arcadius at Constantinople.—In *Archaeologia*, LXXII, 1921–22, pp. 87–104, E. H. Freshfield describes the illustrations in an exceptionally interesting vellum album in his possession, consisting of original sketches of monuments of Constantinople, made by a German who visited the city in 1574. The architectural subjects included are: the column of Constantine, the obelisk of Thothmes in the Hippodrome, the serpent column from Delphi, the obelisk of stones in the Hippodrome, the interior of St. Sofia, the column of Arcadius, the mosque of Sultan Suleiman, the tomb of Suleiman, Leander's Tower, the column of Claudius Gothicus at Seraglio Point. On loose sheets are a general view of St. Sofia and adjacent buildings, and a picture of the tomb of Sultan Selim and his sons. Special importance attaches to the drawings of the column of Arcadius, and the major part of Mr. Freshfield's article is devoted to a review of the historical events which it commemorated and a detailed description of the spiral band of

reliefs which illustrate these events. The column was begun in the reign of Arcadius (395–401), and completed in that of Theodosius II. It was pulled down in 1729, because of injuries due to an earthquake; but its base is still visible in the Awret Bazaar. The subject of the reliefs is the service of Theodosius I to the Empire in 385 A.D., when he defeated a hitherto unknown Scythian people—probably Tartar Huns, forerunners of Attila—who threatened the invasion of the lands south of the Danube in alliance with the Goths under Odothoeus.

INSCRIPTIONS

Correction to Ephemeris Epigraphica, VIII, No. 632.—An inscription cut on an altar in the museum at Terracina is published in *Eph. Epigr.* VIII, p. 145, No. 632, with the following reading: *Isi(di) restitutri(ci)* | *L (ucius) Terentius* | *Stephanus* | *Aug(ustalis) aras et* | *oro[logi]um pec(u)* | *(n)ia sua d(onum) d(edit) et . . . ex p (?) . . .* | *d.* In *Mél. Arch. Hist.* XL, 1923, pp. 207–217, LOUIS LESCHI republishes the inscription, which he reads and restores as follows: *Isi(di) Restitutri(ci)* | *L(ucius) Terentius* | *Stephanus* | *Aug(ustalis) aras et* | *dromum pecu*|*-nia sua d(onum) d(edit) et* | *Anxorates ita po*|*s[u]er(unt) ex d(ecreto) d(ecurionum)* | *et posticum.* The word *dromus* is not elsewhere found in Latin, but the Greeks applied it to the avenues of sphinxes leading to Egyptian temples; its use here is therefore not strange in a dedication to Isis. Probably the freedman L. Terentius erected a series of sphinxes or the like before the temple, and his gift was of such importance as to be officially accepted by decree of the decuriones of Anxur (Terracina). The form *Anxorates* does not occur elsewhere, but is correctly made. The *posticum* mentioned in the last line was probably a *latrina.* Such places were under the protection of Fortuna, with whom Isis was often identified. The date of the inscription is not far from 100 A.D., a time when the cult of Isis was popular in the Roman Empire.

COINS

Lictors' Fasces on Roman Coins.—In *R. Ital. Num.* XXXVI (1923), pp. 5–20, L. LAFFRANCHI describes and discusses the varying details in the depiction of the symbolic rods and axes of Roman magistrates on coins (plates and cuts).

GENERAL AND MISCELLANEOUS

Archigalli and Galli.—In *Mél. Arch. Hist.* XL, 1923, pp. 237–324, JÉRÔME CARCOPINO completes his discussion of the cult of Attis and Cybele at Rome and the reforms of Claudius (see *A.J.A.* XXVII, 1923, p. 483). He finds that the *archigalli* did not exist before Claudius. *Galli* are mentioned frequently in literature, though the word *gallus*, as used by the satirists and Christian writers is not applied specifically to the devotees of Attis and Cybele, but to eunuchs and disgraceful persons in general. Inscriptions, with one doubtful exception (*C.I.L.* VI, 32462) do not mention *galli* at all, but in sixteen inscriptions, only two of which are Asiatic, *archigalli* are mentioned. They were important priests, were Roman citizens, and had nothing oriental but their name. In our texts of Pliny's *Naturalis Historia* (XXXV, 70) we read that Parrhasius "*pinxit et Archigallum; quam picturam amavit Tiberius princeps atque ut auctor est Deculo HS* $\overline{|LX|}$ *aestimatam cubiculo suo inclusit.*" The manuscripts read HSLX, with the exception of the codex Bambergensis, which reads HS$\overline{LX}$, but even 60,000 sesterces is far too low a value for an original work of Parrhasius in the time of Tiberius; hence Jahn made the emendation HS$\overline{|LX|}$. But six million sesterces is found by comparison with other recorded values to be far too high. After discussion of the errors arising from the Roman system of notation, the conclusion is reached that the correct reading is HS$\overline{|\overline{X}|}$, 1,000,000 sesterces. The word *archigallum* is probably a mistake for

artigamon (ΑΡΧΙΓΑΛΛΟΝ, ΑΡΤΙΓΑΜΟΝ), and the picture was probably identical with the one which Suetonius (*Tiber.* 44) interprets as Meleager and Atalanta: "*Quare Parrasi quoque tabulam in qua Meleagro Atalanta ore morigeratur, legatum sibi conditione ut, si argumento offenderetur, decies pro ea sestertium acciperet, non modo praetulit, sed in cubiculo dedicavit.*" This picture of a bride passionately kissing her bridegroom was probably a genre scene to which a mythological interpretation was given when the taste of the times demanded it. The value, 1,000,000 sesterces, is that of the "*archigallus*" of Pliny, and the place (the bedroom of Tiberius) is identical. Several examples of names applied by Pliny and others to works of art are cited. One interesting example is that of a painting in which Protogenes of Caunus represented the Athenian state galleys Paralus and Hammonias "which some people call Nausicaa" (Pliny, *N.H.* xxxv, 101). Another example of peculiar interest is the painting by Aetion which Lucian (*Herod.* 4–6) describes as the marriage of Alexander and Roxana. This has been identified by Ad. Reinach with the nova nupta mentioned by Pliny (*N.H.* xxxv, 78), but Reinach is wrong in thinking that the historical names were originally attached to the figures in the picture; the names were a later invention. There is, then, no need of changing the date (Ol.CVII) given by Pliny (*N.H.* xxxv, 78 and xxxv, 51) for the *floruit* of Aetion, nor is there any longer any difficulty in connecting the famous "Aldobrandini marriage" in the Vatican with the painting by Aetion. The influence of the painting by Parrhasius may perhaps be seen in some voluptuous love scenes represented on Apulian vases. The tales told by Suetonius and Tacitus (and not by Pliny) about the licentiousness of Tiberius at Capri may be based solely upon his admiration for the picture by Parrhasius. The only mention of an *archigallus* before the time of Claudius has now been done away with. Those reforms affected not only Rome, where they made the cult of Attis and Cybele officially part of the state religion, but also Asia, where the cult was regulated by them. Castration was limited to Phrygia, and even Phrygian galli were subjected to a tax (Hephaest. Alex., p. 68 Gaisford, p. 194 Westphal). Claudius purified the cult of Cybele and Attis and established a connection between it and the Roman Empire.

Etruscan Incense-stands.—K. A. Neugebauer is the author of a study of some bronze incense-stands of Etruscan origin, published in *Ber. Kunsts.* XLV, 1924, pp. 28–35 (8 figs.). Four show a female dancer, in long clinging chiton and pointed shoes, and with arms in a posture of the dance, standing on a low table, and supporting on the head the vertical stem of the incense-burner, which is designed to suggest a more or less conventional flower stalk. The style of the little figures associates them with the influence of Eastern Greek art. But no such censers are found in the Eastern Mediterranean, and these are of Etruscan manufacture. Somewhat different is the case with the charming figure of a dancing youth, from Chiusi, No. 693 in the Berlin Antiquarium. This is much more distinctly Greek in style. The author compares it with a figure of a dancing youth wearing a helmet, now in the possession of Dr. Guthmann in Mittelschreiberhau (figs. 1 and 2), and here published for the first time; and assigns to the same group of Hellenizing works a figure from another incense-stand, found in Chiusi, and now in the British Museum. This represents a nude female dancer. The Greek style of these works is to be attributed to the influence of the Greek colonies of Southern Italy.

Stucco Reliefs in Rome.—A systematic study of the extant stucco reliefs of the first and second centuries in Rome is published by Emily L. Wadsworth in *M. Am. Acad. Rome,* IV, 1924, pp. 9–102 (49 pls.). Miss Wadsworth outlines the development of the art of architectural stucco ornament in Egypt, Minoan Crete and Etruria, incidentally calling attention to the lack of this form of decoration in classical Greece. The vogue of stucco ornament in the Campanian cities at the

close of the Republican period is to be traced, with other features of their art, to the influence of Hellenistic Alexandria; and this branch of decorative design played its part in the artistic transformation of Rome at the hands of Hellenistic artists in the period of the early Empire. The art flourished for two centuries, but declined after the time of the Antonines. Miss Wadsworth gives a detailed account of the material composition of the stucco used in Rome, and describes

FIGURE 1

FIGURE 2

DANCING YOUTH: MITTELSCHREIBERHAU

the technique of its application to walls and vaults. The major part of the monograph is devoted to individual descriptions of the stucco reliefs which are still *in situ* in Rome, or are in the museums of the city: those of the Villa Farnese, the Colosseum, the Cryptoporticus of the Palatine, the so-called Bridge of Caligula, the Villa of Domitian at Castel Gondolfo, a vault of unknown origin, the vault under San Clemente, Hadrian's Villa, San Sebastiano, the tombs of the Valerii and the Arricii, the recently discovered "Underground Basilica," and the Tor de' Schiavi on the Via Praenestina. This is followed by a discussion of the system of design of stucco ornament as applied to vaults and walls. The most common designs on vaults are of coffer form, suggested by the original relations of timbers in a roof. Larger panels are frequently introduced as a central feature in coffer designs. A second class of designs is of circles in various relations, sometimes even interlaced. A third class is of "carpet" designs, apparently suggested by Oriental rugs. A fourth style is designated as the "decorative," its compositions consisting of fields of various shape, contiguous to one another, and enclosed by straight lines which are parallel or perpendicular to the cornice, as in the "Underground Basilica." Almost all designs have a central medallion or panel of special importance. The wall designs in stucco correspond in type to the wall paintings of the First and Second styles. The subjects of representation within the frames of the general design are classified as landscapes, human figures, Victories, Cupids, griffins and sphinxes, and minor motives, such as dolphins and sea monsters, gorgoneia, candelabra, and shells.

SPAIN

Rock-shelter Paintings of the Aeneolithic Age.—Paintings of the Aeneolithic Age on sites in Spain are discussed by M. C. BURKITT in *Ant. J.* IV, 1924, pp. 134–141 (pl.; 3 figs.). These remains, known as Spanish Group III, have received less attention than the Palaeolithic paintings of France and Northern Spain and the Eastern Spanish paintings (Spanish Group II). Mr. Burkitt indicates the

kinds of rock on which they occur, and their distribution in the peninsula. The figures are painted in reds and yellows, and are usually isolated. The drawing is highly conventionalized. Conventional drawing sets in even in the Palaeolithic period, and predominates in the paintings of Group II. The certainly later art of Group III has no examples of naturalistic drawing. Many of its figures could not be interpreted except by tracing their origin in less conventional forms. On various grounds this class of paintings must be assigned to an age when copper was already in use. Their motive was probably religious.

FRANCE

The Sacred Forest of Marseilles.—In *R. Ét. Anc.* XXVI, 1924, pp. 116–122 (2 figs.), CAMILLE JULLIAN argues that the sacred forest which, according to Lucan (Pharsalus III, 399–452) was destroyed by Julius Caesar in his siege of Masseilia, was in the valley of Saint-Pons, near Aubagne, 24 kilometres from Marseilles. Its situation and characteristic features correspond to the description of the poet.

GERMANY

Prehistoric Bavaria.—In *Mannus*, XV, 1923, pp. 207–230, FRIEDRICH WAGNER reviews the literature on prehistoric Bavaria published 1900–1922.

Prehistoric Saxony.—Research since the year 1900 on the prehistoric culture of Saxony, Anhalt and Grossthüringen is reviewed by NILS NIKLASSON in *Mannus*, XV, 1923, pp. 231–270.

SWEDEN

The Rock-drawings of Sweden.—The symbols in the form of shoe-soles, wheels and crosses which appear in the rock-drawings of Sweden are discussed by WILHELM GAERTE in *Mannus*, XV, 1923, pp. 271–285 (35 figs.). He concludes that they have no magic or religious significance, but were intended to commemorate bold exploits of invasion and conquest by a Germanic people.

GREAT BRITAIN

Flint Implements.—In *Archaeologia*, LXXII, 1921–22, pp. 25–39 (18 figs.), R. A. SMITH describes and discusses a series of flint implements of unusual importance from British sites, ranging in date from Eolithic to Neolithic times.

Roman Milestones in Cornwall.—In *Ant. J.* IV, 1924, pp. 101–112 (7 figs.), R. G. COLLINGWOOD points out that the tin-mines in Cornwall were not worked by the Romans before 250 A.D., and that the evidence of Roman occupation after this date consists in great part of coins which were brought in to pay for the metal exported. There is no trace of Roman villas or of a permanent camp in Cornwall. There seem to have been no roads connecting Cornwall with other parts of Britain, but some milestones, described and published here, indicate the existence of roads between the mines of the interior and the ports. The course of these roads is conjectured, and finally a list of alleged Roman roads in Cornwall is given.

NORTHERN AFRICA

The Topography of Cyrene.—In *R. Ét. Anc.* XXVI, 1924, pp. 112–114 (plan), EMILE CAHEN cites a passage from Callimachus (Hymn to Apollo, 77–78) indicating that the original settlement of Cyrene was on the western hill, where the temple of Apollo stood. Callimachus says that Battus "built a fair temple and established a yearly sacrifice ἐν τῇ πόλῃι." According to M. Cahen the sacrifice would necessarily be near the temple; hence the temple was also ἐν τῇ πόλῃι. The word πόλις is here used in the same sense as in Athens, where it frequently denoted the Acropolis.

EARLY CHRISTIAN, BYZANTINE AND MEDIAEVAL ART

GENERAL AND MISCELLANEOUS

Notes from Constantinople.—I. A local superstition that some powerful personage, variously named as Constantine Palaeologus the last Greek emperor, or his father John Palaeologus, or St. John the Evangelist, lies buried at the Golden Gate and will rise to bring back the rule of the Greeks, may be traced to the fact that an Egyptian mummy, sent by the king of France as a present to Charles XII of Sweden when he was in exile in Turkey, was thought by the Turks to be the body of a powerful saint and was kept and deposited in the Seven Towers, the fortress of the Golden Gate. The story is attested independently by Lady Mary Wortley Montagu in 1717 and nearly a century later by the French consul Pouqueville. II. A massive iron chain preserved in the military museum in the church of St. Irene is commonly said to be the chain by which the harbor of the Golden Horn was barred at the time of the Turkish attack; but that chain is described as having elliptical links, while the chain at St. Irene is composed mainly of figure-8 links and elliptical links bent in at the sides to approximate that shape. A chain answering this description, which had closed the harbor of Rhodes in the time of the Knights, was seen in Rhodes by Ludwig Ross in 1843 and was afterwards said to have been taken to Constantinople. As a date about the middle of the nineteenth century would tally with that of the founding of the museum at St. Irene, the chain now there is probably the one brought from Rhodes. III. An unpublished reference to the capture of Constantinople by the Turks is found in a manuscript in the British Museum. It tells of three Cretan ships which escaped from the disaster. The same three are mentioned in two other independent accounts. (F. W. HASLUCK. *J.H.S.* XLIII, 1923, pp. 162–167; fig.).

The Goths in South Russia.—In *Ant. J.* IV, 1924, pp. 216–219, NORMAN H. BAYNES argues briefly against Professor Rostovtseff's view that "the Gothic invasion was not the first, but the last act of the activity of the Germans in South Russia," and that "the Gothic epoch was . . . a revival of the Scythian and Sarmatian state in a new shape." The assumption of the existence of a Gothic state, conducting sea-trade from the ports of Southern Russia, is incompatible with ample historical evidence that the Goths, in their invasion of Asia, could not build or navigate ships.

Sarmatian Ornaments.—In *Ant. J.* IV, 1924, pp. 259–262 (2 pls.). O. M. DALTON calls attention to a series of Sarmatian ornaments from Kerch, recently purchased for the British Museum, and points out the interest of their resemblance to Anglo-Saxon and Merovingian ornaments as confirming Professor Rostovtseff in his theory of the ultimate Iranian origin of this type of ornament, and its transmission to the Sarmatians and through them to the Goths and to Western Europe.

The Frescoes of the Church of Abu-Gosch.—In *C. R. Acad. Insc.* 1924, pp. 89–96, CHARLES DIEHL calls attention to the paintings of the twelfth century church at Abu-Gosch, twelve kilometres west of Jerusalem, now in the charge of the Benedictine Fathers. The church is of rectangular form, with no externally visible apse, and no transept. The interior is divided into three aisles, each ending in an apse; and the arrangement of the interior is repeated in the crypt, of which a curious feature is a rectangular basin, fed by a spring. It is possible that the church occupies the site of a Roman fort. The vault of the central apse has a fresco representing the Resurrection in the type of Byzantine tradition. Similarly, the apse at the left shows the *Deisis* of Byzantine iconography, and that at the right the three patriarchs. On pilasters and pillars are figures of saints, and on the walls are representations of St. George, of the Dormition of the Virgin, and of the Crucifixion. The vault of the nave, and the walls of the crypt are also painted. The significant fact in the decoration of this church of the Crusades is

that the types and subjects are derived from the Eastern church, although the inscriptions are Latin. A similar combination is seen in the church at Bethlehem.

Byzantine Frescoes in Bukowina.—In *C. R. Acad. Insc.* 1924, pp. 39–47, O. Tafrali gives a general account of the little-known frescoes of the churches and monasteries of Bukowina, dating from the period of the Moldavian princes of the fifteenth and sixteenth centuries. These monuments are architecturally of the Moldavian style, created under Gothic influence. A peculiarity of the mural paintings is that they are freely applied to the outside as well as to the interior walls of many buildings. The subjects are partly secular and partly sacred. To the first group belong the portraits of many of the Moldavian princes. Among the scenes painted on outside walls special notice is due to the twenty-four illustrated οἶκοι of the hymn Acathiste, celebrating the delivery of Constantinople from the Arabs in the seventh century. At the end of this series is painted (with some anachronisms) a representation of the Arab siege of Constantinople. Other paintings illustrate the life of St. John "le Nouveau," patron saint of Bukowina whose relics are preserved at Succava. Remarkable paintings of the Last Judgment are found on the west walls of churches at Voronets and Humor. A common feature in this ecclesiastical painting is the representation, in a great panel on the west exterior wall of the church, of a number of saints, surrounded by leafy boughs. This is borrowed from the Byzantine art of Southern Italy. Another noteworthy feature of these paintings is the inclusion of celebrated Greek philosophers and poets among the Biblical figures.

Silver Plates from Bulgaria.—In 1903 a number of decorated silver plates were discovered at Izgherli, near Talar Pasardjik in Bulgaria. Three of these, which are now in the possession of M. Schlumberger, are described by Gaston Migeon in *Syria*, IV, 1923, pp. 141–144 (2 pls.). Two are identical in design. On the outer circumference is a zone of engraved ornament in which dogs are represented pursuing a winged griffin. In the centre is a medallion, within which a foliate pattern encloses four small circles, in each of which a griffin or a winged animal of feline appearance is shown. The third plate has a border zone of conventional ornament and a central medallion of interlaced pattern. The work is of thoroughly Oriental style, and presumably the plates were imported into Bulgaria, possibly from the Asiatic shore of the Black Sea. They are to be dated in the period from the ninth to the eleventh century.

Weights of Byzantine Solidi.—Examination of the weights of many specimens of *solidi* coined from the reign of Justinian to that of Constantine IV (527–685) leads Ugo Monneret de Villard to some interesting conclusions. These coins exhibit seven different marks in *exergue*, and are all under the "normal" weight. They are divisible into two groups, and the second group into two subdivisions according to marks and average weights. The conclusion is that along with the "normal" *solidus* of 24 *siliquae* circulated others of 20, 21, and 22 *siliquae* respectively. Whether there was also minted a *solidus* of 23 *siliquae* cannot yet be determined (*R. Ital. Num.*, XXXVI, 1923, pp. 33–40).

The Treasure of Putna.—In *C. R. Acad. Insc.* 1923, pp. 365–372, O. Tafrali gives a brief account of the treasures of mediaeval art preserved in the monastery of Putna in Roumania, 32 kilometres west of the city of Radutji. The monastery was founded by Stephen the Great in 1466. It was destroyed in the seventeenth century; and the present buildings belong to that date; but most of the sacred objects, the greater part of which are from the time of Stephen the Great, were preserved. They are described in a Roumanian monograph by the Rev. Father Dan, entitled *Monastirea Putna*. One is a painted wooden cross, a gift from the monastery of Xiropotamo on Athos. There are a great number of embroidered vestments.

FRANCE

The Frescoes of St.-Gilles de Montoire.—In *Gaz. B.-A.* IX, 1924, pp. 19–29 (4 figs.), F. LESUEUR proposes a new interpretation of the mutilated frescoes of St.-Gilles de Montoire, combating principally the interpretation of Abbé Fabre recently published in *Gaz. B.-A.* Fabre's theory that the three apsidal figures represented the three members of the Trinity was based upon a study of the water color copies in the Trocadero rather than upon the frescoes themselves. The present study is based upon the frescoes, which, though in a very bad condition, yet show some details that were not recorded by the copyist. The conclusion here drawn is that the fresco in the apse of the choir represents the Apocalyptic vision of God at the Last Judgment; the two scenes in the apses of the transept pertain to the life of Christ in His mission of founding the church: one, His terrestial act, giving the keys to St. Peter, the other, His heavenly act, sending the Holy Spirit upon His Apostles.

St.-Jouin-de-Marnes.—The sculptures of the west façade of the Romanesque church of St.-Jouin-de-Marnes at Poitou is the subject of a study by É. MAILLARD in *Gaz. B.-A.* IX, 1924, pp. 137–150 (7 figs.). Though some parts of the church date from the early eleventh century, the sculptures of the façade belong to the twelfth. The façade has been restored, but many of the reliefs remain in their original condition. The principal figure sculptures consist of the Last Judgment group in the gable, with the procession of monks and laymen at the base of the gable, the statues at the sides of the central window and the groups over the columns beside the central window. Influence from other French churches is to be seen in the figure sculpture, but the purely decorative carving is almost entirely Oriental in its inspiration. Its immediate source is, for the most part, Spain, which was available less as a consequence of the pilgrimages to St. James at Compostella than as the result of alliances between the Spanish sovereigns and the house of Aquitaine.

BELGIUM AND HOLLAND

Dutch Paintings of the Fifteenth Century.—In *Jb. Preuss. Kunsts.* XLIV, 1923, pp. 136–146 (figs.), F. WINKLER helps to correct the general impression that Dutch painting in the early fifteenth century is represented only by Ouwater's Raising of Lazarus. A panel with eighteen scenes from the lives of Christ and Mary, which came originally from Roermond and is now in the Rijks Museum, Amsterdam, is here published as probably the earliest preserved Dutch painting of the fifteenth century. The master's name is unknown, but his elegant, impersonal style points to influence from Hubert van Eyck's miniatures and to a date of about 1420–40. A triptych whose central panel represents the Crucifixion, also in the Rijks Museum, is somewhat later, dating about 1430–70. Its master, too, is unknown, but he worked in Utrecht, for he has painted a view of Utrecht in the background of the central panel. He probably worked in the same atelier as the "Master of Gysbrecht van Brederode," for the triptych finds striking parallels in the miniatures assigned to that master. Finally, two paintings dealing with the Crucifixion and two engravings are dated between 1450 and 1490 and assigned to a master working in Hertogenbosch. They have sometimes been ascribed to Hieronymus Bosch, but, though related to his style, they do not entirely conform to it. Both the "Master of Hertogenbosch" and the "Master of Utrecht" are more native, more purely Dutch, as one sees by their rough, inelegant types, than the "Master of Roermond."

GERMANY AND AUSTRIA

The "Schöne Madonna" of about 1400.—Under this designation W. PINDER, in *Jb. Preuss. Kunsts.* XLIV, 1923, pp. 147–171 (pl.; 29 figs.), discusses a type of

sculptured Madonna, about a meter in height, rich in modelling, and jewel-like in coloring. She stands in a free, graceful pose, prophetic of the early Renaissance, and offers an apple to the Child, whom she holds on her left arm. The type is followed in four geographical groups. A variety of influences are manifest, some clearly traceable to France. But the author contends that German originality of the type is by no means to be questioned, that the essential characteristics are German.

An Upper German Master of the Fifteenth Century.—In *Ber. Kunsts.* XLV, 1924, pp. 40–42 (fig.), H. SCHMITZ calls attention to an interesting painting in the

FIGURE 3

LEGEND OF ST. JAMES: BERLIN

Lipperheide Library of Costume at Berlin. It is the wing of an altar-piece, and represents four scenes of the legend of St. James and the transference of his body to Spain (fig. 3). The style is not the idealizing, Italianate style which appears in some of the German paintings of the fifteenth century recently acquired by the Kaiser-Friedrich Museum. Its realism anticipates the qualities which eventually predominated in German art. Its exact provenance can not be determined, but it was probably painted in the region of the Bodensee.

The Bells of the Diocese of Trent.—In *Dedalo*, V, 1923, pp. 451–462 (21 figs.),

G. GEROLA writes concerning the bells that were requisitioned by Austria from the diocese of Trent. While the oldest ones are but sparsely decorated, later examples are often quite ornate and, beginning with the fifteenth century, often bear inscriptions giving the names of the bronze workers with some information concerning their artistic and paternal derivations.

GREAT BRITAIN AND IRELAND

Irish Bronze Pins.—In *Archaeologia*, LXXII, 1921–22, pp. 71–86, (3 pls.; 5 figs.), E. C. R. ARMSTRONG classifies and discusses the chronology of Irish bronze pins of the Christian period. "Those decorated with triskele and spiral ornaments derived from the pre-Christian period may be assigned to the fifth and sixth centuries. The polygonal-headed pins with rings of wire . . . probably belong to the sixth century. Long pins with bosses on their stems are probably of seventh- or eighth-century date . . . For several other varieties of pins, crutch-headed, zoömorphic, etc., it is difficult to suggest a date other than the ninth century. Finally the brambled pins, and the large pins of similar shape, but in which the brambling has been replaced by interlaced and linear patterns, may be placed in the tenth century."

Sculptured Cornices at Banbury.—In *Ant. J.* IV, 1924, pp. 1–10 (17 figs.), CHARLES E. KEYSER discusses the interesting sculptured cornices which are found on churches near Banbury, and conjectures that these unusual ornaments are due to the taste of William of Wykeham. A monogram W W appears on a shield on the church at Adderbury, and seems to be a signature of the great ecclesiastical architect. The motives which appear in this richly varied series of sculptures are enumerated, and an appendix catalogues the sculptured figures on the cornices of the churches of Brailes, Alkerton, Hanwell, Bloxham, and Adderbury.

Weaverthorpe Church.—In *Archaeologia*, LXXII, 1921–22, pp. 51–69 (2 pls.; 3 figs.), JOHN BILSON describes the church at Weaverthorpe in the Yorkshire Wolds and discusses in detail the history of its foundation. An inscription on a dial in the church shows that it was associated with one Herbert, Chamberlain of Henry I. He died in 1130, and the church therefore presumably belongs to the early years of the twelfth century. It is important because of its authenticated date and because, while mainly Norman in style, it exhibits some pre-Conquest features.

The Monastery of St. Milburge at Much Wenlock.—In *Archaeologia*, LXXII, 1921–22, pp. 105–132 (11 plates, including a colored plan), D. H. S. CRANAGE publishes an extended discussion of the imposing remains of the monastery of St. Milburge at Much Wenlock in Shropshire. Of the early Saxon abbey on this site, founded in the seventh century, some slight traces were found in excavations in 1901. No remains of the later church dedicated by Earl Leofric and Lady Godiva have been discovered. The great church of which the ruins are still standing belongs in great part to the thirteenth century. There are also considerable remains of the cloistral buildings; and some of the secular structures associated with the monastery are still in use.

Mural Paintings of St. Christopher.—In *Ant. J.* IV, 1924, pp. 227–241 (5 pls.), H. H. BRINDLEY publishes a discussion of the mural paintings of St. Christopher in English churches. A map and statistical tables show the distribution of these paintings in the several counties; but it is pointed out that these indicate rather the extent of the destruction of mural painting from the time of the Reformation on than the degree of veneration in which the saint was held in different parts of England. Few of the paintings are to be dated in the fourteenth century; a fair number belong to the fifteenth. The most elaborate painting of the subjects is at St. Keverne, on the Lyard. Mr. Brindley's article is followed by a description and illustrations of some unpublished paintings of St. Christopher.

Mediaeval Bronze Bowls.—Two bronze bowls of mediaeval date, engraved with interesting figure designs, are discussed by O. M. DALTON in *Archaeologia*, LXXII, 1921–22, pp. 133–160 (pl.; 3 figs.). Both are now in the British Museum. The first, which was found in London, is ornamented with a series of engraved pictures illustrating the legend of St. Thomas. These legends are also illustrated on two bowls discovered at Bethlehem, and on one in the Louvre. The series of illustrations on the London bowl resembles that on one of the Bethlehem bowls, those of the bowl in the Louvre resemble those of the second bowl in Bethlehem. The second of the London bowls is called the Cadmus bowl, because it has a central medallion with an inscribed representation of Cadmus; this is surrounded by smaller medallions, also inscribed, representing the labors of Hercules. This bowl was discovered in the Severn in 1824. Mr. Dalton calls attention to a number of other illustrations of classical myth in Romanesque art. Both the Cadmus bowl and the St. Thomas bowl belong to the twelfth century, but it is not yet possible to assign to them a certain provenance. Aix and Cologne were centres of such workmanship at this time. But it is not impossible that the bowls are of English origin.

The Lindisfarne Gospels.—The British Museum has issued *The Lindisfarne Gospels*, with introduction by ERIC GEORGE MILLAR, *F.S.A.* (London, 1923, British Museum; 52 pp.; 39 pls. 50s.). The decorations of this great masterpiece are now reproduced in full for the first time. After a brief history of early Northumbria and of the MS. itself, follows the description of the manuscript, its contents, writing and decoration. A bibliography on pages 51–52 completes the text. The Latin text agrees closely with that of the Codex Amiatinus (A) in the Laurentian Library in Florence. Plate XXXVII, which is from Cod. Amiatinus (I, f. 5) showing a monk (the so-called Ezra picture) seated before a five shelved case of manuscripts and copying one, is almost exactly the counterpart of the full page miniature of St. Matthew on the verso of the Lindisfarne MS. f. 25 b (Plate XX). The decoration shows four full page miniatures of the Evangelists, five pages of elaborate cruciform designs, (perhaps derived from metal book covers, similar to the lower cover of the Lindau Gospels in the collection recently presented to the American public by Mr. J. Pierpont Morgan), six pages of ornamented text, sixteen pages of Eusebian Canons, and a number of initials. Hardly can the Book of Kells show more perfect work. Three of the pages are reproduced in color in the British Museum edition; *viz.*, the cruciform design on the page preceding St. Matthew, and the opening pages of St. Matthew and St. Luke. The script of the Lindisfarne Gospels is the insular half-uncial, and is written stichometrically, *i.e.* 'cola' and 'commata,' in double columns of 24 lines. The glosses, both red and black, formerly thought to be in different hands, are here attributed to Aldred's (perhaps the Bishop of Durham, 952–968) own hand. Proper comparison is made with the three similar Gospel manuscripts, the St. Chad at Litchfield in the Cathedral Library, the A, II, 17 in the Durham Cathedral Library, and the Bodleian MS. (New Pal. Soc. Ser. II, Pl. 81).

RENAISSANCE ART

GENERAL AND MISCELLANEOUS

Paintings in the John Herron Art Institute of Indianapolis.—From the funds provided for the John Herron Art Institute by the will of the late James E. Roberts, ten paintings of Mediaeval and Renaissance schools have been purchased, initiating the collection which is to be known by the name of the donor. They are described and illustrated in *The Bulletin of the Art Association, Indianapolis, Indiana, The John Herron Art Institute*, XI, 1924, pp. 29–53 (12 figs.). They include the following: Barnaba da Modena, Crucifixion (fig. 4), formerly in the Lazzaroni and

Nicolle collections; Bicci di Lorenzo, St. Blasius; Jacopo del Sellaio, Madonna adoring the Child, formerly in the Lazzaroni collection; School of Diereick Bouts, a polyptych of twelve panels, illustrating the legend of St. James; German School, about 1480, Virgin and Child; Catena, Madonna and Child; Jacob Cornelius, Annunciation (Steinbart, *Die Tafelgemälde des Jakob Cornelisz von Amsterdam*, pl. 13); Joost van Cleef, Madonna and Child; Lo Spagna, St. Jerome; Ambrosius Benson, Crucifixion.

The Crespi-Morbio Collection.—In *Dedalo*, IV, 1924, pp. 535–554 (pl.; 17 figs.), C. GAMBA gives some description of the collection formed at Milan during

FIGURE 4

CRUCIFIXION BY BARNABA DA MODENA: INDIANAPOLIS

the last century by the Crespi-Morbio family. It contains first rate Italian paintings extending over a period from the primitive masters to modern. Among the primitive and Renaissance artists represented are Barnaba da Modena, Catena, Romanino, and Moretto.

ITALY

The Authenticity of the Portrait of the Doge Francesco Foscari.—In *Ber. Kunsts.* XLV, 1924, pp. 42–43 (3 figs.), W. VON BODE discusses the claim of the Italian sculptor, Licudis, to have made the plaque representing the Doge Francesco Foscari which Dr. von Bode had attributed to Donatello (see *Dedalo*, IV, 1923, pp. 393 ff.; *A.J.A.* XXVIII, 1924, p. 109). The German critic maintains

his original view of the authenticity of the plaque, basing his conviction on the character of the patina, which could not have been secured by any known artificial process. He suggests that Signor Licudis in his early studies made a copy of this work which he now asserts was his own.

Wax Models by Michelangelo.—In *Burl. Mag.*, XLIV, 1924, pp. 4–16 (3 pls.), E. Maclagan discusses a group of wax models acquired for the Victoria and Albert Museum in 1854 from the Gherardini collection. Considerable doubt has been thrown upon the authenticity of the models by various critics. But the present writer shows through comparison with finished sculptures by Michelangelo that at least the model for a slave, that for Hercules and Cacus, and those for the anatomical studies have much evidence in favor of their being considered original models by Michelangelo. Wax models ascribed to Michelangelo in other collections, of which the most numerous are to be found in the Casa Buonarroti and the collection formerly in the possession of Prof. Hähnel, and now in America, are here briefly considered.

The Ceramics of Savona.—In *Dedalo*, IV, 1923, pp. 424–450 (pl.; 20 figs.), M. Labà traces the development of what is known as Savonese pottery, showing that it was manufactured in other places in the Riviera besides Savona, particularly at Genoa and Albisola. But its manufacture continued much longer in Savona and so was noticed only there by writers. Undoubtedly, the earliest native ware in this region was influenced by imported Hispano-Moresque ceramics. Local work probably began as early as the second quarter of the fifteenth century but flourished principally in the sixteenth and seventeenth centuries, dying out about the middle of the eighteenth. The chief merit of this ware does not lie in its material, which is poor, nor in its workmanship, which is weak in detail, but in its pictorial effect of color masses. The style developed when the bloom of Italian ceramics had already passed.

A Painter of Animals and Plants.—In *Dedalo*, IV, 1924, pp. 554–570 (pl.; 11 figs.), O. H. Giglioli presents Jacopo Ligozzi, the sixteenth-century Veronese painter in a new light. Ligozzi was a friend of the Bolognese naturalist Aldovrandi and under the direction of the latter he made some 300 colored drawings of animals and plants. These later passed into the Medicean collection and are greatly admired not only for the impression of realism that they give but also for their aesthetic qualities.

An Unknown Drawing by Raphael.—In *Burl. Mag.*, XLIV, 1924, pp. 75–76 (2 pls.), O. Fischel publishes a drawing owned by F. Lugt, Holland, which once belonged to the Reynolds collection. It is Raphael's study for one of the figures in the Borghese Entombment and is one of the finest, most spirited of the many drawings he made for that composition.

A Painting by Carpaccio.—In *Burl. Mag.* LXIV, 1924, pp. 58–59 (pl.), A. Martin reproduces a painting of a young Knight in a Landscape, which has recently come into the collection of Otto Kahn, New York. It is here assigned to Carpaccio's best period, 1490–1500, when he painted the story of St. Ursula.

An Unknown Work by Carpaccio.—In *Burl. Mag.* XLIV, 1924, pp. 59–65 (pl.), G. Gronau presents a hitherto unpublished panel painting by Carpaccio (the present location is not given). The subject is St. Michael as Victor over the Dragon and as Weigher of Souls. The attribution is based rather upon general stylistic considerations than upon close parallels with other paintings by the master. The work would seem to belong to Carpaccio's early period, though that is not certain.

Titian's Venus and Adonis.—In *Burl. Mag.* XLIV, 1924, pp. 16–22 (2 pls.), C. Holmes publishes reproductions of the three versions of Titian's painting of Venus and Adonis. The one in the National Gallery has been considered a copy of the Prado composition, but a recent removal of the varnish from the former

shows it to be a much finer work than it has been considered and proves that it is the most experimental and the earliest of the three versions. It has been considerably damaged by fire, giving it a brown coloration, but it has suffered no repainting. The Prado painting is the second version—it dates from 1554—and the one belonging to Lord Spencer must have been produced several years later still.

Sixteenth Century Art Criticism in Venice.—Using the contributions of Aretino, Pino, and Dolce, L. VENTURI, in *Gaz. B.-A.* IX, 1924, pp. 39–48 (3 figs.), contrasts Venetian aesthetics with Florentine. Until the sixteenth century there had been no independent writing in Venice on art criticism, but with the beginning of this century we find a complete break with tradition in critical writing as well as in painting itself. While Florentine criticism emphasized scientific features of painting, insisted upon definite proportions, carefully arranged compositions, and relief in black and white, to the subordination of colors, Venetian criticism emphasized psychological features of painting, insisted upon imaginative creation, and value in colors rather than in black and white. Venetian aesthetics was not without its influence upon Venetian painting; Aretino was not a painter himself, but a literary man, hence the traditions of painting had no binding upon his writings; he did not hesitate to let personal impressions direct his writing.

Rediscovered Veroneses.—In the middle of the seventeenth century Ridolfi mentioned a number of important paintings by Veronese in the church of S. Giacomo at Murano. But from the third quarter of the eighteenth century they were no longer to be seen there and writers considered them lost until now, when F. INGERSOLL-SMOUSE writes, in *Gaz. B.-A.* IX, 1924, pp. 96–100 (pl.; 3 figs.), of the rediscovery of four of the paintings in England. Three of them, the painting of the principal altar, a work of the artist's old age, and the panels of Sts. James and Augustine, works of his youth, are now in Burghley House, at Stamford. The Visitation, a work of his maturity and the finest religious painting, perhaps, that he ever made, is now in the collection of the Count de Powis, a descendant of Lord Clive.

Francesco Ferrucci.—In *Gaz. B.-A.* IX, 1924, pp. 1–11 (8 figs.), E. DE LIPHART eliminates a number of bas-reliefs formerly ascribed to Desiderio da Settignano, which seem to be below the standard of this master and to group themselves under the characteristics of a sculptor mentioned by Vasari and supplied with a number of works by Venturi. Francesco Ferrucci was in the same atelier with Leonardo, and in the bas-reliefs attributed to him by the present author he betrays the direct influence of that master's youthful work, particularly of the Benois Madonna. The lower part of a relief of the Madonna and Child in the Via Cavour, Florence, is copied almost exactly from the Benois painting. The Virgin's head in the relief of the Madonna and Child with Angels in the Foulc collection, Paris, is copied from the Benois painting. And a relief of the Madonna and Child in the Dreyfus collection, Paris, follows closely Leonardo's British Museum drawing for the Benois composition.

The Drawings of Jacopo de Barbari.—In *Burl. Mag.* XLIV, 1924, pp. 76–83 (3 pls.), A. DE HEVESY studies the drawings and engravings of Barbari, ascribing to him some examples hitherto otherwise attributed, as an allegorical subject in the Louvre, formerly given to Leonardo, and a Triumphal Procession at Christ Church, Oxford, formerly given to the School of Costa. The conclusion of the discussion is that Barbari, while not the great genius that Morelli judged him, was yet an artist of the élite, lending variety, delicacy, and refinement to all his productions.

SPAIN

A Painting by El Greco.—In *Burl. Mag.* XLIV, 1924, p. 45 (2 pls.), W. G. CONSTABLE publishes a painting recently acquired by Miss Davies from the col-

lection of Don Gualterio Juan Buck at Jerez de la Fontera. The subject is Christ led to Calvary. It is one of the best derivations from the famous "Espolio" completed by El Greco in 1579 for the cathedral of Toledo. It makes use of only the upper part of the Toledo picture and that in a revised form. Both it and the Toledo painting represent the period when El Greco was breaking away from the Venetian style and working out his individual characteristics. Miss Davies' composition shows a more advanced stage of this process than does the one at Toledo and her picture must date between 1580 and 1584.

FRANCE

The Chateau-Neuf of St.-Germain-en-Laye.—In *Gaz. B.-A.* IX, 1924, pp. 68–95 (15 figs.), L. DE LA TOURRASSE traces the development and decay of this pleasure resort begun by Henry II and largely carried out by Henry IV. The elegant grottos, gardens, and terraces are now almost gone, final destruction having been wrought by the construction of the railroad. Only the Doric gallery, the Pavilion of Henry IV, and the Pavilion of Sully remain from the wonderful palace.

BELGIUM AND HOLLAND

Dutch Mannerism.—In *Jb. Preuss. Kunsts.* XLIV, 1923, pp. 184–204 (9 figs.), H. KAUFFMANN traces the history of the school of Fontainebleau, showing how, when it was dominated by Roman-Florentine characteristics, it remained a foreign phenomenon in France, but when in 1541 Primaticcio brought back from Parma to Fontainebleau the soft sfumato effects of Correggio and Parmigianino the school took on a French air and became popular with native French artists. It is this school of Fontainebleau which is here designated as the source of the manneristic style in Holland. There are several reasons for this conclusion: the two schools are contemporary; we have Dutch copies of Fontainebleau frescoes and the employment of Fontainebleau mythological subjects in Dutch pictures where the cases are not ones of actual copying; and we know that influential Dutch artists who founded the manneristic style came directly or indirectly under the influence of the Fontainebleau school. C. Ketel went to Fontainebleau in 1566–67, Bloemaert and Uijttewael in 1582–83 and 1587–88 respectively, and Corneliszen and others brought the same style back to Holland. But it was not so suited to the burgher character of Holland as to the court spirit of France, and it always remained a foreign growth in Holland. It was Frans Hals and Rembrandt who first established a native national art which superseded the foreign mannerism.

A Painting by Otto van Veen.—In *Ber. Kunsts.* XLIV, 1923, pp. 43–46 (2 figs.), FRIEDRICH WINKLER discusses a painting of Lot and his Daughters by Otto van Veen, now in the Kaiser Friedrich Museum. It is a distinguished example of the work of the Dutch painters of the last half of the sixteenth century. In the eighteenth century the painting was considered to be a work of Raphael. The competence of the artist in the representation of action and in modelling is limited, in spite of his evident Italian studies; but composition and color give charm to the work.

The Master of the Half-Lengths.—A group of pictures of half-lengths of women, developing out of those by Isenbrandt and his followers, has been ascribed by one critic to Jean Clouet, by another, to Jan Massys. M. CONWAY, in *Burl. Mag.* XLIV, 1924, pp. 142–143, ascribes the largest part of the group to an artist designated as the Master of the Half-Lengths and another set to the Master with the Parrot. The group is particularly interesting as showing the earliest emancipation from ecclesiastical bondage in subjects of this kind. The provenance of the Master of the Half-Lengths is uncertain, but all his pictures are essentially French in spirit, breathing the atmosphere of the French court of Margaret of Valois.

GERMANY

Christian Art and Germanic Character.—In *Mannus*, XV, 1923, pp. 331–349, MARIA GRÜNEWALD publishes an essay which embodies considerations on the possible relation of the primitive Germanic attitude to life (Weltanschauung) to the Christian art of Germany in the Renaissance. Among the characteristic Germanic traits which she finds expressed in this art are a tendency to brood on the problems of life, a heroic temper, a reverence for light as a divine power, a reverence for creative power. The author's conclusions are illustrated by particular reference to the work of Dürer, of Grünewald, and of Rembrandt.

The Drawings of Martin Schongauer.—Taking a book written by Jacob Rosenberg as a basis, M. LEHRS, in *Burl. Mag.* XLIV, 1924, pp. 133–134 (2 figs.), discusses the separation of the drawings by Schongauer from those by his school and reproduces two hitherto unpublished drawings in Henry Oppenheimer's collection in London. They represent the bust of a Turk and the head of an old man. Both are by Schongauer himself.

Peter Flötner in Augsburg.—Light is thrown upon the problem of Peter Flötner's early artistic activity by E. F. BANGE in *Jb. Preuss. Kunsts.* XLIV, 1923, pp. 107–117 (11 figs.), through a stylistic analysis of the putti that decorated the Fugger chapel in Augsburg. It is known that the decoration of this chapel was intrusted to Adolf Daucher. But several hands are distinguishable in the work, proving that Daucher was master of a considerable atelier. Several of the putti, especially fine in conception and execution, are shown by comparison with some putti by Flötner in Nuremberg to be by that artist. So it is safe to conclude that this important master of the early German Renaissance spent the first few years of the sixteenth century, until 1518, when the Fugger chapel decoration was completed, in Augsburg. After that he went to Italy for a few years and then to Nuremberg for his later work.

GREAT BRITAIN

The Coventry Tapestry.—A recent opportunity for examining and adequately photographing the famous Coventry tapestry prompts an article on the subject by A. F. KENDRICK in *Burl. Mag.* XLIV, 1924, pp. 83–89 (2 pls.). The evidence is conclusive that the tapestry was made for the space it now occupies, the wall under the great North Window of St. Mary's Hall at Coventry. The costumes date the work about 1510, and the technique proves it the product of weavers of the Low Countries, probably of Brussels. The upper central compartment with the figure of Justice was inserted in the late sixteenth century, apparently replacing an enthroned Trinity.

AMERICAN ARCHAEOLOGY

GENERAL AND MISCELLANEOUS

Carvings from the Greater Antilles.—In *Am. Anthr.* XXV, 1923, pp. 525–558 (11 figs.), ADOLFO DE HOSTOS publishes a study of anthropomorphic carvings from the Greater Antilles. They range in size from pillar stones, some five or six feet high, to small amulets, and are classified as frontal and pectoral amulets, engraved celts and "dirks," disks and masks, massive human heads, three-pointed idols, elbow-stones, idols embodying the entire human form, pillar stones, pictographs, and other objects. The study of this material has led the author to the conclusion that "the aboriginal Arawak cultures seen in the light of the carved stone remains seem to be almost identical in the three regions—eastern Cuba, Haiti, and Porto Rico."

NEWS ITEMS FROM THE AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS

The official opening of the School was held on October 2, 1924. Since this date was the forty-second anniversary of the original opening, Professor Fowler, who was the first student registered in the School, talked informally on the difference between the life of a student in those days and present conditions for study in Greece. The Director outlined the work for the year and Professor Allen told of his plans for lecturing on problems connected with the Greek Theatre.

On Tuesday, October 7, a party of six, consisting of Professor Allen, Miss Carter, Miss Broe, Mr. Broneer, Mr. Logan, and Mr. Stillwell started in two Fords, under the leadership of Mr. Blegen, on the Northern Trip. They went as far as Thebes the first night and followed the usual itinerary with the addition of a visit to the excavations now being conducted by Miss Goldman at Eutresis in Boeotia. With Miss Goldman are Miss Hansen and Miss Burr and Mr. De Jong, the architect who is drawing the plans of the walls excavated.

During April and May the British School of Archaeology under the direction of Mr. Woodward, assisted by six students and Mr. Piet de Jong, architect, carried on excavations at Sparta. The stage buildings and the retaining wall of the theatre were uncovered and one trench was dug to reveal the arrangement of the seats. On the face of the retaining wall of the left *parados* numerous inscriptions were found. The work is to be continued next year.

For a period of ten weeks this spring a number of Swedish archaeologists under the direction of Mr. Persson resumed the work at Asine which had been begun last year. Beneath the Greek and Venetian walls, on the top of the acropolis, a Middle Helladic settlement was discovered. Many fine vases were found here and the plans of some of the houses could be clearly traced. A lower city of the Early Helladic period was uncovered at the foot of the acropolis. On the opposite hill nearer the modern village, a temple and a settlement of the Geometric period have long been known. Farther down on the slope twenty-seven chamber tombs of the Mycenaean period were identified but only five of these have been excavated during this season. Their contents include many vases of the best period and other rare finds.

Mr. Welter-Mauve of the German Archaeological Institute has been carrying on a campaign in Aegina at the Temple of Aphrodite. Here a part of a large Middle Helladic palace with numerous rooms, an outer wall with towers and corridors have been uncovered. All of the pottery, made of the typical greenish-yellow clay of the island, is of the Middle Helladic period.

The French School conducted excavations at Mallia in Crete where they uncovered valuable evidence for the pre-hellenic period. The work at both Delos and Delphi was continued and in the region of the Hermeion at Delphi a complete series of archaic bronze statuettes was found. Other excavations were carried on at Philippi, Thasos and in Ionia.

The Director of the American School and Mr. Thompson, the architect of the Gennadeion, have staked out the position of the new excavation house at Corinth (Mr. Shear's) and the digging for the foundations has begun.

The work on the exterior of the Gennadeion is progressing rapidly—the houses are finished up to the top cornice and a considerable part of that is in place as well as a small portion of the cornice of the main library building. The marble cutting on the architrave, with its three steps and egg and dart moulding, and the cornice, above, with its magnificent lion's heads and elaborate mouldings, is done by

men imported from Constantinople whose work compares favorably with that of the ancient Greek artisans. The columns of the eastern colonnade are in place as well as the two big antae at either end of the main portico. The latter have a beautiful honeysuckle design on their caps. The contract for the marble griffins at the corners of the roof has been given to an Athenian sculptor.

Work has begun on the interior finishing of the east house and the white tiled walls and floors of the bathrooms are nearing completion—this house may be ready for occupancy by February. Some of the furniture has already arrived while other pieces are being made to order at various places in Europe.

E. P. B.

American School
Athens